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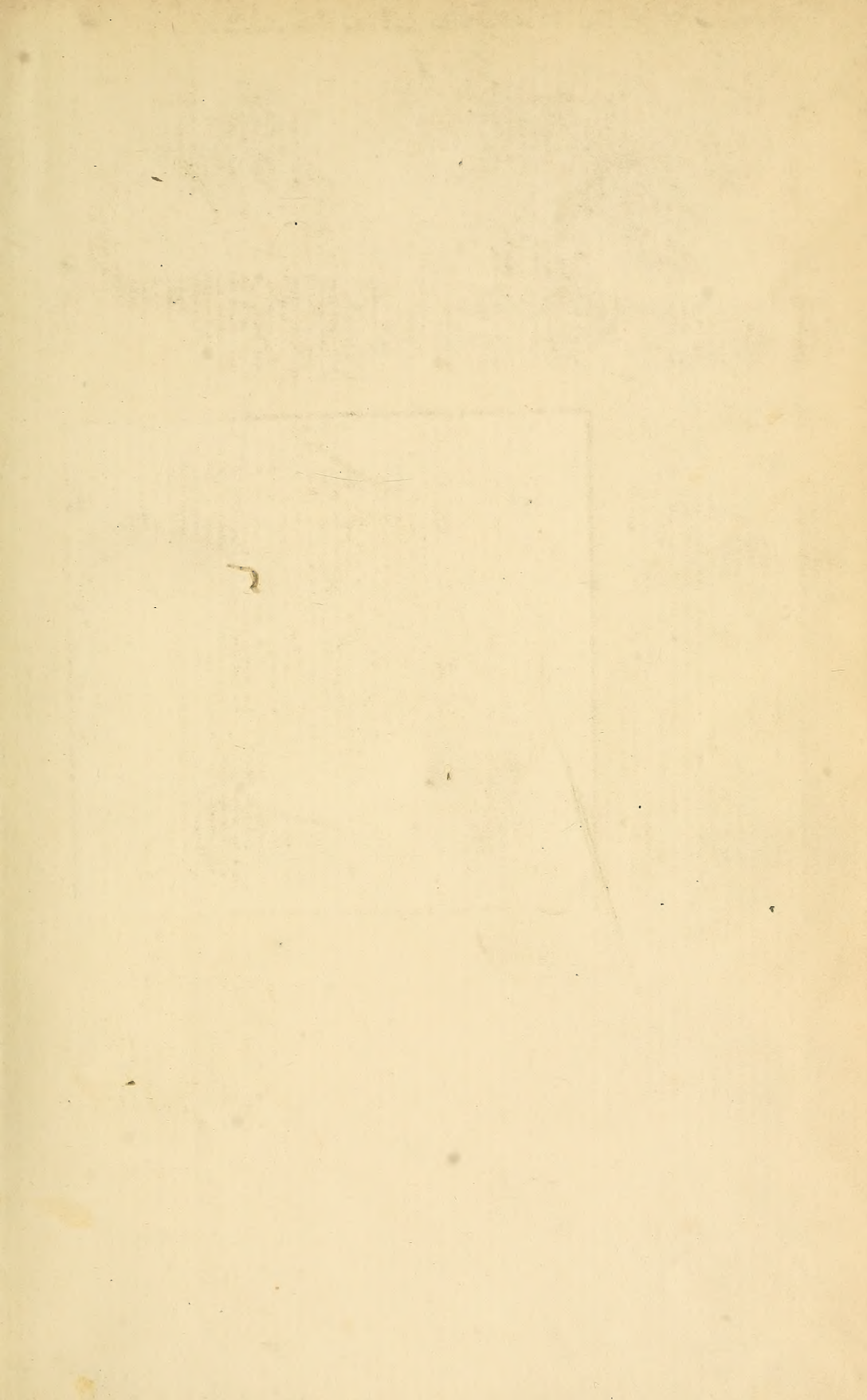
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PHILADELPHIA  
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AN ILLUSTRATED SEMI-MONTHLY JOURNAL,  
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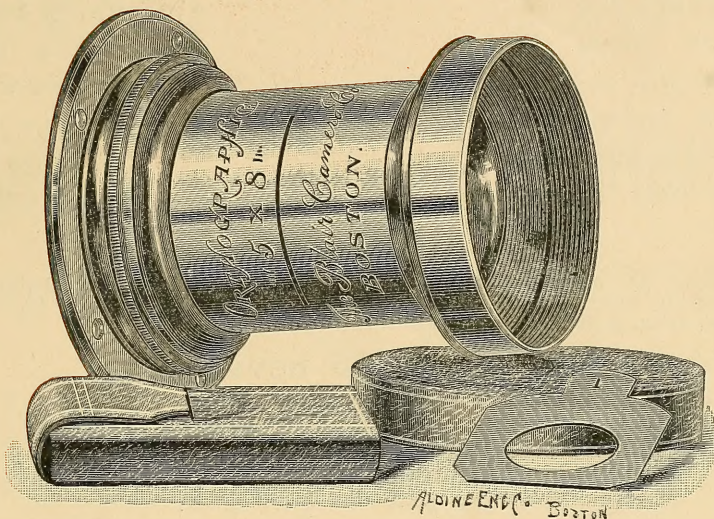
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COPY OF LETTER FROM W. H. LEIGH TO MESSRS. ALLEN BROS.,  
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W. KNOWLTON.

(Signed)

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GENTLEMEN: I send you by to-day's mail a curiosity, that is, it is such to me; to you it may be only what you see daily, viz., a 7½ inch head, made with a No. 5 B Suter Lens, with the No. 16 stop, in five seconds (poor light and slow plate at that). You will see that it is *microscopically* sharp from the end of the chin to the back hair over the ear. If it is of any use to you, you are welcome to it, and this statement with it. I have had the lens for nearly two years, but never exposed it on a head in my gallery until within the last month, using it entirely for outdoor work. I shall continue its use under my light, shelving one of the best "D ———" extra 4 x 4 portrait lenses, that cost four times as much.

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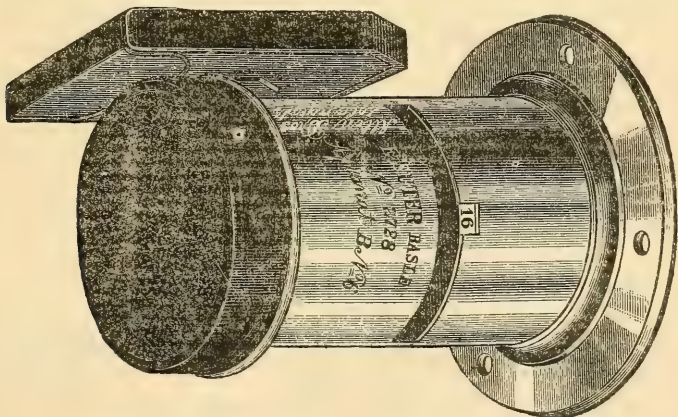
The No. 6 B and return you the No. 4 A by to-day's express.

DEAR SIRS: The No. 6 B and 4 A Suter Lenses you sent me have been carefully tested alongside of a No. 6 ———. The latter lens does no such work as either of the Suters. I keep

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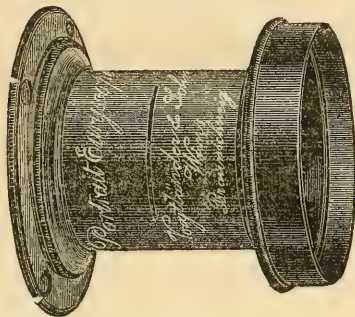
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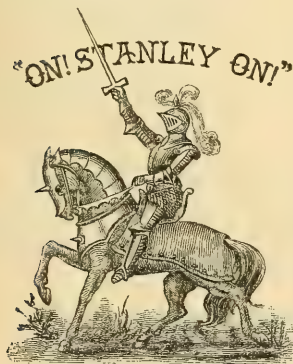
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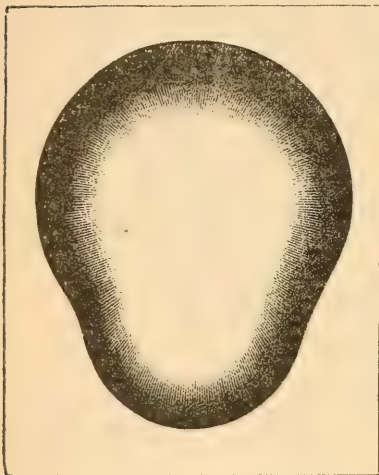
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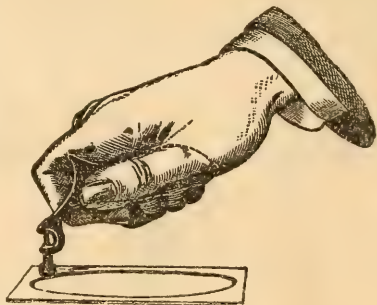
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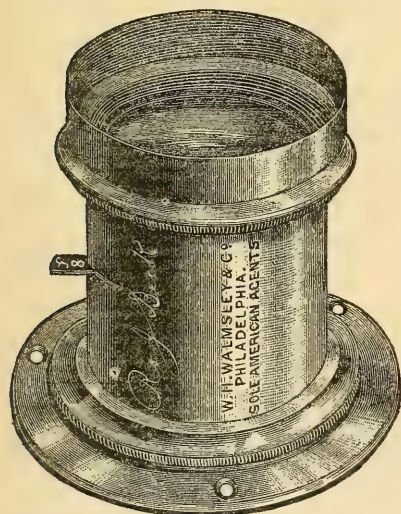
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- January 21st.*—Carolling. By H. P. ROBINSON, England. Phototype, by F. GUTEKUNST, Philadelphia.
- February 4th.*—The Fairy Dance. By G. CRAMER, St. Louis, Mo. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- February 13th.*—Ready for Action. Negative and prints by F. GUTEKUNST, Philadelphia.
- March 3d.*—A Quartette of Prize Pictures. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- March 17th.*—Portrait Study. By OSCAR SUCK, Carlsruhe. Prints (Ives process), by THE CROSSCUP & WEST ENGRAVING Co., Phila.
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- June 2d.*—A Quartette of Prize Pictures. Silver print, by ROBERTS & FELLOWS, Phila.
- June 16th.*—Two Years Old. By A. A. MARSHALL, Boston, Mass. Prints, by BOSTON PHOTO-GRAVURE Co., Boston, Mass.
- July 7th.*—Breathe and Breadth. By WILL H. MOWREY, Milford, Mass. Silver print, by ROBERTS & FELLOWS, Philadelphia.
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- September 1st.*—A Cabinet Study. By H. M. WAIDE, Quincy, Ill. Aristotype print (Liesegang's), by ROBERTS & FELLOWS, Philadelphia.
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OSCAR SUCK.

CARLSRUHE

GERMAN PEASANT STUDIES.

THE  
**Philadelphia Photographer.**

EDITED BY EDWARD L. WILSON.

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**FOR THE NEW YEAR—WHAT?**

A BETTER condition of things for photography and photographers we are sure. It is not entirely because we sincerely desire happiness and prosperity for every one of our readers, that we feel so sure of a better condition of things, but because we see not only continual and growing indications of favorable change, but the changes themselves blooming. They have not come suddenly, but they come. We have no right to expect a better condition for ourselves, however, unless we personally do something substantial to bring it about. One of the very best things for a photographer to do is to form a close connection with the great fly-wheel of improvement, which revolves continually and speedily. To do so, he needs a belt that will keep him within the charmed influence. That belt is undoubtedly the best photographic magazine he can find. We do not intend to flatter the PHILADELPHIA PHOTOGRAPHER (it is too old for that) by saying it is the best kind of belt you can employ, but we believe it is. It is not one of those broad, heavy, noisy, ponderous belts, however, which clog the speed and cast a great black shadow athwart the photographer's path, but it is of modern style and invention, full of chain-links so welded and bound, that it brings at each revolution of the wheel some new thought, or formula, or help from one part of the world or another, sure to benefit all those who employ it. Now having slipped yourself within the encirclement of this

useful accessory of power, you simply need to imbibe, and absorb, and follow the influence of what it brings around to you. We are sure—we guarantee—that you will then find and see the improved condition of things. We have been looking ahead for a long time, preparing a splendid array of attractions for our twenty-fifth year. Our long acquaintance and intimate relation with the leading spirits of the art of photography, give us special advantages for obtaining quickly all the choice items which come up from time to time. Our intimate and personal acquaintance and correspondence with thousands of our readers, enable us to judge fairly of their wants. They may feel sure that we shall cater for their individual help as well as for general information.

Few editors have a greater variety of wants to look after than we do. But we are fond of our work—we like it—we have wondrous faith in the possibilities of photography, and we are its enthusiastic advocate. During the quarter century of our service we have not amassed independence, however, but we are as dependent as ever upon the support and sympathy of our subscribers. We want the old ones *all* to come back to us, and we shall welcome every new one. Our programme has been set before you so far as one dare go in an art which leaps and jumps as ours does; and what else is to be done on our part must be included in our semi-monthly numbers. We have the best belt, and it has started for 1888. *Get inside with us.*

"There is no better trade paper than the PHILADELPHIA PHOTOGRAPHER, which sticks closely to its specialty, and is so intelligently edited by Mr. Edward L. Wilson, the publisher, that every line is made to tell."—*Public Ledger*.

[Translated for *Mosaics* by H. A. Pintard.]

### MANY MITES FROM FOREIGN MINDS.\*

INFLUENCE OF TEMPERATURE ON THE SUCCESS OF PHOTOGRAPHIC OPERATIONS.—In his *Carbon Process* (Paris, Gauthier-Villars), Dr. Liesegang gives excellent advice on the rules to be followed during the heat of summer, and in hot countries. In his opinion the principal defect caused by the great heat is the cracking or the reticulation of the print during or after development. The most simple means to prevent this defect, is to give a coating of collodion to the carbon tissue. This may be done in the manufacture, and special papers for warm countries may be found in the trade. The use of this paper differs in some respects from that of ordinary paper. After having been sensitized, it should not be squeezed, but placed flat upon a sheet of bibulous card-board. If it is to be developed on a plate, it is not necessary to coat it with collodion, since the paper is already coated; it is simply waxed (*wax*, 3 parts; *benzine*, 500 parts). With a paper thus prepared, less difficulty will be met with during hot weather. Ordinary paper requires the following precautions:

Dilute the bichromate bath and add carbonate of soda, or adopt the following formula:

Water, 1 quart; bichromate of potash, from 154 to 308 grains; carbonate of soda, 31 grains. Cool the bichromate bath and the water used to wet the paper before developing, by using ice; avoid working during the hot hours; begin early in the morning, and sensitize the papers at night, when it is cooler. Use a very fluid collodion; allow the plate covered with a transfer paper to dry in a cool and rather damp

place; if the paper dries too fast, there will be reticulation.

A recent number of *Deutsche Photographen-zeitung*, has also an article on failure caused by the temperature, which it recommends to maintain at about 59° Fahr. This temperature is easy to obtain and maintain, in summer, by the aid of suitable ventilation; and in winter, by the aid of stoves giving a uniform heat. It is true that when we wish to photograph a landscape, especially in winter, it is not always easy to operate at a temperature of 59°, in the open air. This may be done, however. If, in the neighborhood, there is an inhabited house, the box of plates should be allowed to remain for some time in a warm room, and the plates should not be taken from the box and placed in the camera until they are ready to be exposed to the action of the light; should there be no habitation in the neighborhood, the operator should place the box containing the plates on his breast, under his wearing apparel, and allow it to remain for some moments. Thanks to this very simple process excellent results have been obtained in very cold weather. Care should also be taken to have the developing solutions at the proper degree of temperature; it is impossible to have vigorous and sharp negatives if a cold bath is used. If the operator has not at hand a heated camera, he must wait until night and develop in a warm room, in which the dishes and the solutions are allowed to remain for a few hours. If he is obliged to work in a cold room, the developing dishes should be placed in a large receptacle filled with hot water, on which they are made to float.

The temperature of the gold bath plays also an important part in the toning of prints. It is impossible to obtain regular and agreeable tones if a cold bath is used. The prints are without vigor, and acquire a slaty tone; or, when plunged into the fixing bath, an ugly red appearance.—*Journal de l'Industrie Photographique*.

SEPIA TONES OBTAINED ON ALPHA-ILFORD PAPER BY SIMPLE DEVELOPMENT.—I hasten to make known the formula of a developer which gives, without toning, a

\* Written for *Mosaics*, but received too late.

great variety of very agreeable tones to prints made on the alpha paper of Ilford.

Prepare the three following baths :

A.

Distilled Water 1000 c.c. (34 fl. oz.)  
Oxalate of Potash, 280 grammes (9 oz. Troy).

B.

Distilled Water . 500 c.c. (17 fl. oz.)  
Bromide of Potassium 280 grammes (1 oz. 5 drs.).

C.

Distilled Water . 500 c.c. (17 fl. oz.)  
Sulphate of Iron 140 grammes (4 oz. 4 drs.).

To develop pour into a dish

A. 80 c.c. (2 fl. oz., 5 drs.)

B. 20 c.c. (5 fl. drachms).

Immerse the sheet and when it is well imbibed pour the liquid into a glass, add about ten drops of C, pour again into the dish and agitate. If the image does not show itself, add more of the solution C, but always in the glass, never directly in the dish. The object in proceeding as above is to develop with as little iron as possible. When the image has well shown itself wash rapidly in two or three waters, and immerse two minutes in a solution of

Water . . 1000 c.c. (34 fl. oz.)  
Pulverized Alum 50 grammes (1 oz. 5 drs.)  
Citric Acid . 12 grammes (3 fl. drachms),

again wash and fix in a solution of hyposulphite, at 15 or 20 per cent. again wash in plenty of water. To obtain a brilliant surface, dry on a talc plate, or on a sheet of hard rubber well polished. With short exposures the tones incline to black ; with long exposures we obtain a sepia tone. By diluting the developer with one-half of its volume of water, the tone may also be made to vary.—*Progrès Photographique*.

DEVELOPING AND TONING BATHS FOR INSTANTANEOUS PHOTOGRAPHS.—In a test tube I place pyrogallie acid in powder (the quantity contained in a boxwood mustard spoon), sufficient water to cover the plate, and finally a solution of bromide of potassium at 10 per cent ; the longer the exposure the more bromide I use. I pour the whole into the dish, over the plate ; it is not developed, but the longer it remains in

this bath, the more it will be penetrated by the pyrogallie acid, and the more details will be had. The duration of the immersion, however, should not exceed one minute. I now, again, pour the solution into the glass, adding a few drops of ammonia at 10 per cent., and I throw the whole into the dish, over the plate.

If, at the end of a minute, the image has not appeared, I repeat the operation, that is to say, the addition of a few drops of the solution of ammonia, and so on until the image appears, which is allowed to come up quietly. To have details, add ammonia ; when the details have come, to give intensity, add pyrogallie acid. If the print be overexposed, it will appear when the ammonia is first added ; in this case, add to the bath a solution of bromide which will retard the coming of the cliché and generally save it from fogging. The objection has been made to this developer that it gives a slight tint to the clichés, but it is easy to prevent this coloration by adding a little sulphite of soda to the developer, or by removing the color of the cliché, when it is finished, by means of a very weak solution of any acid, citric, chlorohydric, etc.—A. LONDE, *Journal de l'Industrie Photographique*.

ALKALINE DEVELOPMENT.—For the purpose of revealing a latent image in the sensitive films of gelatino-bromide of silver, the alkaline developer is incontestably the best ; its energy is an established fact. Success depends more upon the manner of developing the image than on the preparation of the plates, when they are to be used for making instantaneous pictures. I often hear it said that this kind of development of the image is difficult to conduct, that one cannot at will give more or less softness, more or less opposition to the subject, that the print is successful, or is not so. No, this is not the case, and it is very easy to moderate and change the action. By varying the quantities of pyrogallie acid, of bromide, ammonia, potash, or soda, we have here the means which may be used with advantage, should the image appear too rapidly ; owing to overexposure, or an excess of ammonia, potash, or soda,

the addition of a few drops of a five per cent. solution of bicarbonate of soda, will prove to be a good moderator and prevent the inevitable fog; should the print show itself too uniform, a few drops of glucoside of ammonium will give at once opposition and contrasts. It is also very advantageous to add to the alkaline developer a small quantity, a few cubic centimetres, of good fresh beer, or, for want of beer, water containing five per cent. of sugar; this allows the increase of the quantity of ammonia, potash, or soda, without causing fogging, and the obtaining of more vigor. Unless the exposure has been too great in one direction or the other, by proceeding as above it will always be possible to obtain a suitable negative, provided the effects produced are carefully watched and aided by the resources at hand. It is impossible that any given reducer should follow in an irreproachable manner the mysterious action of light, unless all attention is paid to the modifications which observations will indicate. I prefer the glucoside of ammonium mentioned above, in the following manner: In 3 fluidounces, 3 drachms of ordinary liquor ammonia I dissolve 154 grains of grape sugar (glucose). I allow to rest for a few days, then filter and add 3 fluidounces, 3 drachms of water. I again filter and preserve the liquid in a glass-stoppered bottle. By keeping it does not seem to suffer any change, and the bottle that I have in use some years gives a result analogous to that obtained during the first days of its preparation.—ERNEST BOIVIN, *L'Amateur Photographe*.

**WASHING PLATINOTYPES.**—Some correspondents have written to us to inquire the cause of the yellow coloration of their platinotypes. It arises from the excess of the salts of platinum and iron with which the paper is impregnated. The prints may be restored to their original whiteness by thoroughly washing them in a bath (from three to four and a half fluidrachms of acid for one quart of water), which is to be renewed until the prints have again become entirely white. They are then rinsed in pure water, changed several times, until all traces of the acid entirely disappear, which

is easy to ascertain by using litmus paper. If all acid reaction has not disappeared, it might end by injuring the fibre of the paper and converting it into hydrocellulose.

No alkaline reagent (carbonate of soda, carbonate of potash, ammonia, etc.) should be added to the waters of the washing, under penalty of precipitating in the pulp, in the state of carbonate or ochreous oxide of iron, the chloride of iron that has remained in the paper.—*Journal de L'Industrie Photographique*.

**STRENGTHENING GELATINE PLATES.**—The negative print, developed with pyrogalllic acid and fixed, is, without being washed, placed in the following solution:

Water . . . . .	2 oz. 5 drs.
Sulphate of Iron . . . .	185 grains.
Chrome Alum . . . . .	31 “

In a few minutes the print is cleared and at the same time strengthened.

If the print is too hard, it should be placed in the following solution:

Water . . . . .	1 fluidounce.
Chlorhydric Acid . . . .	2 drops.

—*Photo. Archiv*.

**STAINS OF PYROGALLIC ACID ON THE HANDS.**—A good method of removing these stains is as follows: Washing in water to which have been added for each quart, from sixty to eighty drops of chlorhydric or sulphuric acid.—*Photo. Rundschau*.

**BROWN SPOTS ON GELATINE NEGATIVES.**—Experience teaches us that when the alum solution used as a bath for clearing negative prints before fixing, is not in sufficient quantity in the dish to cover completely the plate, often brown spots show themselves on the gelatine negatives. It is wrong to suppose that these spots are produced from insufficient fixing, inasmuch as the portions that remain brown are those which have not been in contact with the alum solution, and none of the portions of the plate that had been covered by the solution show similar spots.—*Photo. Rundschau*.

**GOLD BATHS FOR ENLARGEMENTS (EMULSION PAPERS).**—Dresser has remarked that most of the baths made use of do not give a

good tone. He recommends the gold bath with hyposulphite, which should be successful with all the commercial emulsion papers. He adds to the soda bath (fixing bath), for 7 ounces 6 drachms of the solution,  $\frac{9}{10}$  grain of chloride of gold. The two operations are thus united in a single one, and a very beautiful tone is obtained. If we wish to obtain a brown tone, add to the same bath chloride of gold and chloride of platinum in equal quantities.—*Photo. Rundschau.*

#### RETOUCHING VARNISH FOR GELATINE NEGATIVE PRINTS.

Alcohol . . . .	800 parts.
Sandarac . . . .	120 "

Dissolve. After complete solution add two teaspoonfuls of Venice turpentine and the same quantity of gum elemi.

Retouching with a crayon may be very successfully done on this varnish.—*Photo. Archiv.*

**A GOOD CEMENT.**—The adhesive property possessed by gum arabic, dextrine, etc., is materially increased, it is said, by the addition of sulphate of alumina: 31 grains of crystallized sulphate of alumina are dissolved in 308 grains of water, and this solution is added to 8 ounces of a thick solution of gum. The product thus obtained is excellent for sticking wood, glass, and porcelain.—*Photo. Rundschau.*

**PROCESS TO REMOVE THE VARNISH FROM GELATINE NEGATIVES.**—Place the negative in a solution composed of  $3\frac{1}{2}$  ounces of alcohol and from 8 to 16 grains of soda or caustic potash. The coating of varnish acquires a milky appearance, and may be easily removed by agitating the dish or rubbing with the finger. Wash afterward in water.—*Photo. Meittheil.*

**MUCILAGE FOR MOUNTING PRINTS.**—Dr. Laroche makes use of a mucilage for mounting prints which he finds excellent; it consists of a solution of gum arabic to which is added a little sulphate of alumina. The acidity of this last salt is counteracted by a few drops of ammonia. This mucilage is very adhesive and unalterable.—*Bulletin Belge.*

**SIMPLE METHOD FOR PREVENTING HALOS.**—Different processes have been recommended for preventing the halo, among which is the use on the back of the sensitive plate of an antiphotogenic film of collodion colored with bitumen of Judea dissolved in benzine, or of a glycerinated gum paint. These divers processes are very tedious, not practical, and require the cleaning of the back of the plate after development. Why not, instead of painting the back of sensitive plates, simply, after having placed them in the negative frame, lay a sheet of black cardboard on the back of the plate? I have always proceeded in this very simple and practical way, and I do not think that the antiphotogenic films recommended by the *British Journal* give better results than a piece of black cardboard, which is easily placed in and removed from the negative frame.—M. CASSAN in *Le Progrès Photographique.*

#### ECONOMY IN THE DARK-ROOM.

BY H. C. STANDAGE.

As the silver and gold salts used in photography are expensive, and as, moreover, they are used in excess of the quantity taken up by the formation of the photograph's image, there is, necessarily, a waste of valuable material, which, however, can be recovered with very little trouble, and regained in such a way as to pay for its recovery.

**Recovery of Silver Salts.**—A large glass jar, such, for instance, as that used by confectioners, or even a large pickle-jar, will answer as a receptacle for all the refuse from the various manipulations; for instance, the nitrate of silver drippings from sensitized paper should be drained into this jar, and whenever a vessel that has contained nitrate of silver is washed, the first wash-water should be poured into this jar, also the water used to wash photographic prints before they are toned. If much photographic work takes place, it is well to have two such waste jars, the second one to fill while the first one is at rest to allow the precipitation of the silver salts.

The nitrate of silver is soluble in water, therefore we need some body that will cause

this silver salt to be precipitated in a solid form. Such a body is readily found in common salt—*i. e.*, chloride of sodium. This body, combining with the solution of nitrate of silver, forms the insoluble silver chloride, which sinks to the bottom of the jar; *e. g.*  $\text{Ag} \cdot \text{NO}_3 + \text{NaCl} = \text{AgCl}$  (argentic chloride) +  $\text{NaNO}_3$  (in solution). Therefore, by keeping some sodic chloride in the waste jar, the silver nitrate is decomposed and precipitated as the white insoluble chloride; but one caution must be observed. This chloride of silver is slightly soluble in a concentrated solution of chloride of sodium, therefore the latter salt must not be in excess. The nitrate of silver is neutralized and converted into chloride by almost one-third its weight of chloride of sodium. The exact quantity of the soda salt to use depends on the size of the jar, and must be determined practically. Thus, fill the jar with water and put in common salt until the water will dissolve no more. Make a note of the quantity of salt used, and then employ about one-third this quantity for the precipitation of the silver salt from a jar full of waste solutions and washings.

There is another point requiring attention. If the liquid has not become quite clear, or all of the silver salt precipitated, there would be a waste of silver if the water were drawn off, because some of the silver salt suspended in solution would be drawn off also. In such a case, the addition of a little hydrochloric acid, and the contents of the jar stirred, will soon cause all the silver salt to be precipitated.

To test whether there is still any silver salt not precipitated, add a few drops, slowly, of a solution of sodium chloride; if there be any silver nitrate still in solution, the water will assume a milky cloudiness; a little more chloride of sodium should then be added, until the liquid becomes clear.

When the liquid has become clear, it should be drawn off without disturbing the sediment that has been precipitated to the bottom. In regular photographic establishments this waste-jar has a tap in the middle of its height; but, as our jar is only a domestic vessel, to which no tap can be fixed, the clear liquid must be syphoned off. A piece of glass tubing, bent in the form of a

Λ, with one end longer than the other, will act as a syphon. To use it, the short limb should be placed in the jar, and should reach just above the top of the sediment, while the longer limb should be just outside the jar, and should be long enough to reach lower than the bottom of the liquid to be drawn off. By applying the mouth to this long limb and sucking the water over the bend of the tube, all the supernatant liquid from the jar can be drawn off without disturbing the silver chloride that has been precipitated. You must not forget to put a vessel to catch the water as it flows from the tube. A piece of India-rubber tubing can equally replace the bent-glass tube to act as a syphon. In syphoning off liquids that are highly poisonous, care should be taken not to let the liquid enter the mouth nor touch the lips. A proper syphon, with a glass stop-cock, should then be used. The precipitated chloride of silver should then be poured out or spooned out into a receptacle and then dried. This drying is usually affected in porcelain evaporating dishes in photographic establishments; but, as the cost of this article would more than counterbalance the silver gained from the waste, it is not needful for the amateur to go to such an expense, because he can effect the drying of this precipitate just as well in an enamelled frying-pan or saucepan, provided the enamel is not chipped off anywhere. By gently warming the pan and its contents over a fire, the precipitate soon dries. Then it should be sent to the refiners to have the silver extracted in its metallic form. They charge but a trifle for doing this, and recover much more silver than the amateur would himself. As, however, there may be some of my readers who may not be near a refiners, or who may wish to try the extraction of the silver himself, he may do so in a rough way by fusing the mass with alkaline carbonates or cyanides, when a button of silver will fall to the bottom. A Hessian crucible filled with the mass, and mixed with excess of alkali, crammed down tight, can be used. The crucible should be plunged in the midst of a fiercely burning coke fire, or else in the grate of a copper, having previously made up a fierce fire. Another method is to put the precipitate in a porcelain tube, place this across a fiercely-

burning fire, let one end be connected with an apparatus energetically generating hydrogen gas. The chlorine unites with the hydrogen, forming hydrochloric acid, which escapes from the open end of the tube, while the silver is precipitated in the metallic state. A third method is to boil the precipitated chloride in a suitable vessel with a strong solution of potash, or carbonate of potash and grape sugar—*i. e.*, dextrose.

Beside the waste-jar, another saving of silver can be effected by saving all the clippings of prints, and the blotting-paper used in mopping up waste drops of the silver salts, the filter papers, etc. These should be preserved until there is a sufficient quantity to burn. Then taking the lid of a saucepan, rest it on something, with the handle downwards, light a few bits of clean white paper, and while these burn throw in a few of the clippings, etc., keep adding these clippings to the burning mass until they are all consumed, then collect the ashes out of the lid, and add them to the dried chloride for the waste-jar, and recover the silver as previously directed. These ashes may be added to the waste-jar, whereby the silver salt in them will be converted into chloride.

*Recovery of Gold.*—There is always a quantity of gold salt in the toning-bath after that ceases to tone any more prints. This gold can be precipitated by a solution of protosulphate of iron—*i. e.*, ferrous sulphate or green vitriol. A black precipitate is formed, which chiefly consists of carbonate and oxide of iron, together with very fine particles of metallic gold. Collect this precipitate on a filter paper, and burn this, when dried, with the clippings containing the silver salt. This gold is best recovered by the refiner who will allow for it when reducing the silver salt.

*Ascertaining the Presence of Gold in a Mixture.*—Pulverize the mixture, and mix it with an alcoholic tincture of iodine. Dip a piece of Swedish filter-paper into the liquid and burn it. The presence of gold in the mixture is indicated by the ash assuming a purplish color. Next evaporate the old alcoholic solution to dryness, heat it gently, and then treat with a mixture of nitric and hydrochloric acid until the solution again evaporates. On adding water to the residue,

and then stirring with a glass rod which has previously been dipped in a mixed solution of stannous and ferric chlorides, the formation of a bluish-purple confirms the presence of gold. This purple precipitate is known as the "Purple of Cassius."—*The Camera.*

Translated from "*Photographischer Correspondenz.*"

## LIMETYPE;

### A NEW PHOTOGRAPHIC PRINTING PROCESS.

BY PROF. J. HUSNIK.

UNDER the name "Leimtypie," a new photo-mechanical photographing process has been invented by Prof. J. Husnik, in Prague. This "leim" plate takes the place of the metal or wood surface formerly used, and upon this the picture is copied by photographing, developed and immediately applied to the press. Many experiments have been made to solve this problem, but hitherto without success. By Prof. Husnik's invention, the process was brought to perfection, and by it pictures of great fineness are obtained. The plate is made very hard, so that it stands the printing press well, and can be cut with the knife like horn.

Prof. Husnik sent us the following communication concerning his process:

"The limetype is a process patented by me, and consists in exposing chromogelatine plates under negatives in lime and wet, then to fasten them upon suitable supports, and develop them from the exposed side (not from the back, as in pigment prints) by rubbing and by the use of salts, which the gelatine dissolves in ordinary temperature.

"The rubbing is done with brushes. The finest work can be produced, and the copies are clearer and more even than zincographs.

"The limetypes are developed in from one-half to three minutes, but need from four to ten hours to dry. A person can produce from thirty to fifty plates a day.

"The upper surface of the limetype is quite plain. The limetypes print very well, without much preparation, and stand an edition of 5000 copies, without injury. They are sensitive to heat and to water, just like the wood-cut, which cannot stand the heat

either, and in water the lime falls out. Direct sunlight heats the limetype and can spoil it. When this is known, the clichés can be guarded from sun and moisture, and thus preserved for use for a long time.

"Whoever has large editions to print, can make several clichés, since there is a negative for the first, or he can provide an electrottype. During the time of the American gymnastics in Prague, I produced all the illustrations of the festivities in this manner, and orders, which were pouring in, were filled in from five to six hours."

A limetype produced by this method was published in the *Photographic Correspondenz*. It was fastened to a zinc plate and this attached to a wood block. This affords an opportunity of judging of the merits of the new method.

This process has been used for some months by Prof. Husnik for journal illustrations, and a large number of very successful illustrations in line and half tone manner have appeared in journals in Prague.—DR. EDER.

## WHERE GO, WHAT TAKE, AND SOME OTHER MATTERS.

BY W. ADCOCK.

I FEAR this may raise too high your hopes of the models as subjects I am about to recommend to your notice, for they are only the sprawling, ill-fed, ill-clad men, women, and children to be found every summer's day on the benches of Trafalgar square. I point to these as models for giving dramas of real life. I am aware I tread on tender ground. A gentleman who is a good photographer has said to me that judging by my work, I seem to have a liking for somewhat vulgar subjects. If laborers smoking, and gipsies' heads, and pinched-by-poverty tramps out of luck, and boys top-spinning form vulgar subjects—unless by treatment I have done something to refine them—I am open to the impeachment. My critic, with higher aim, aspires to portray objects of greater beauty. I think I have seen ships or boats done by him very fairly, and have admired them. In olden times, the subjects of painters varied. Murillo painted Madonnas which

are the glory of the world, but he also painted a begger-boy, which is little less thought of. I know these are very common people I ask you to make studies of. I know a decent garment is not to be found on a hundred of them. I know rags and tatters, and shoeless feet and capless heads prevail amongst them. Are they from these things less picturesque? You, gentlemen, any of you, would make a picture from a tramp with a starving wife carrying a child. What, let me ask, would you make of a sleek, well-matured, well-dressed man, with his wife and daughter, out for a walk or going to a meeting? You would portray good facts probably, and good clothing, but unpicturesque looking people and bad material for picture-making. Short means are calculated to make sharp faces. Hard times wear muscle and flesh as well as shoddy into tatters. Character, the thing wanted for picture-making, as far as the model goes, peers through features whittled by hourly anxiety how to get a meal. This is one phase of human nature, and a strong one. Surely its portrayal is not to be ignored. Pictures of pretty things may alone please some people, not all. Prettiness is apt to verge into weakness. One of the strongest of living painters painted nothing but the sorrowful side of life for so long that he won a soubriquet which pointed to it. You remember his "Visit to Newgate." It is the genius of the artist which shines through the treatment of these very common people, and, possibly, according to some ideas, very vulgar incidents.

I think we amateurs do too few interiors. I can only account for this by supposing a wide-angle rectilinear lens is one of the last an amateur buys, and that, as no other is held suitable for interiors of much depth, these get neglected. I have no recollection of ever seeing photographs of the beautiful sculpture in St. Paul's, and yet much of that would be got by an ordinary lens of the rapid rectilinear type. You may have seen piles of "The Poet's Corner;" I have never seen one copy. I have no recollection of having seen other portions of the Abbey, yet what grand subjects must both it and St. Paul's give! Is not the taking of

these things as tempting as scampering a hundred miles after view-taking, when you may get lovely landscapes within—I was going to say sound of Bow Bells, but certainly on all sides of London ten miles away from them. If we would but consider how little it takes to make a picture beyond the treatment of the subject, we should look more to Hampstead, Sydenham, and Barnet, and less to Derbyshire, Scotland, and Wales.

—*Journal of the Camera Club.*

### QUERIES, QUESTIONS, AND CONUNDRUMS.

"CURIO" wants to know "the meaning of the design on the Blair Cup?" There is no particular significance to the cupids on the sides, the design being merely fanciful. The cup is of Roman shape, with acanthus leaf handle and border. The cup was made by Messrs. Tiffany & Co., New York, and cost \$258.00 including the inscription.

"ART STUDENT."—Mr. Henry B. Snell is the Corresponding Secretary of the Art Students' League, 143-147 East Twenty-third Street, and will send you full particulars free. The league is an admirable institution. The exercises include drawing and painting from life; modelling from the cast and from life; antique courses; composition; artistic anatomy; costume and sketch classes. For ladies and gentlemen.

"G. W. W." wants to know if he "can roam around this great United States with the camera, and focus unlicensed where I please." In answer we quote the following from the municipal laws of Richmond, Va. Can our readers inform us if other cities are equally behind the age? And does it keep the "cheap John" away? This is the law of Richmond:

*"Daguerrean and Photograph Artists and their Agents.*—Any person who engages in fixing images of objects according to the invention of the daguerrotype or photograph, by whatever name it may be called or known, shall be deemed to be a daguerrean artist; and every person who shall canvass for any daguerrean artist or photographer, or shall act as the agent for such

artist or photographer in transmitting pictures, daguerrotypes, or photographs to other points for the purpose of there having them copied or enlarged or colored, shall be deemed to be a daguerrean or photograph artist's agent or canvasser. And he shall be deemed a daguerrean or photograph canvasser whether he acts for himself or for another. And every such artist or agent engaged in the business of the invention aforesaid, or as a canvasser therefor, shall obtain a license, and it shall be unlawful so to engage without a license. For every violation of chapter one of this act, the person offending shall pay a fine of not less than fifty dollars nor more than five hundred dollars for each offence.

*"Licenses to Daguerrean and Photograph Artists and Agents.*—Every person who shall engage in the business of a daguerrean or photograph artist, or who shall act as a daguerrean or photograph artist's agent or canvasser, shall pay for the privilege the sum of twenty dollars; and if the place of business is in a city or town containing more than two thousand inhabitants and less than ten thousand, he shall pay thirty dollars; and if in a place of more than ten thousand and less than twenty thousand, forty dollars; and if more than twenty thousand, fifty dollars; and an additional sum of five dollars for each county or town in which he operates other than that in which he has his regular place of business."

"LECTURER" wants to know if there is no easier way of projecting pictures than by the magic lantern. There is *another* way, but it is by no means as good a way. Yet the annexed extract from a recent Philadelphia paper will answer the query:

At the laboratory of Dr. Charles M. Cresson, No. 413 Locust Street, a private exhibition of the megascope was given to a number of gentlemen. It is used as a microscope for the purpose of presenting enlarged views of writing, engraving, etc., and is especially adapted to discovering forgeries and counterfeits. Unlike the photographic enlargements usually made for the convenient examination of documents, the use of this instrument permits the direct examination of the original paper under any

desired magnifying power, and it ensures the correct use of the magnifying lenses which are employed.

The megascope consists of a large achromatic and aplantic lens, about seven inches in diameter and over two feet focus, placed in front of a platform upon which the writing or engraving to be examined is securely fastened and kept flat by means of a plate-

GEO. HEARN.—No, the Talcott mount is *not* "a cardboard and therefore awfully high." The albumen print is hermetically sealed to plate glass, bevelled, and then bound and backed strongly, with a stand. It is a taking thing, and we wonder that more do not push it. Once more we add an example of how it is used in New England galleries.

(Fac simile of a card in use.)

## COLLINS.

Studio Price of Photo. \$5.00

Talcott's Mount, . . . 3.00

\$8.00

Due at time of sitting, 1.00

Balance, . . . . . 4.00

This is not a club ticket, and is worth \$8.00 to the holder, and can be procured only of

A. M. MERRILL,  
General Agent.

## I. A. COLLINS, PHOTOGRAPHER,

Hanson Street Next to Post Office,

ROCHESTER, N. H.

### SPECIAL OFFER.

In view of giving to the public more generally the benefit of our BEST AND LATEST STYLE OF ART WORK in photography, we issue a LIMITED number of SPECIAL RATE COMBINATION TICKET EXTRAORDINARY, by which our patrons secure \$8.00 worth of best GUARANTEED work for \$5.00.

This ticket entitles the holder to 13 cabinet photographs, one of them to be mounted by "TALCOTT'S PATENT PROCESS, the picture being HERMETICALLY SEALED, rendering it practically INDESTRUCTIBLE. One-half dozen at the usual rates.

Pay to Agent, Fifty Cents.

GOOD UNTIL USED.

I. A. COLLINS.

*Agent not allowed to make any change in this ticket.*

glass cover. The document is illuminated by oxyhydrogen lights placed upon either side, having condensers arranged so as to concentrate the lights upon the paper. Examinations can be made by a single observer by looking through the lens at the illuminated paper. To enable many persons to observe and examine simultaneously, a large plate-glass screen, lightly ground upon one side, is placed in front of the lens so as to intercept the rays which are reflected from the illuminated writing through the lens. In this way enlarged images of objects and writings, free from spherical and chromatic aberration, can be obtained. In this instrument the parts are fixed, and no disturbance of the relative distances can occur, and the usual inconveniences and distortions caused by improper or ignorant use of the ordinary magnifying glass are avoided.

Dr. Cresson's megascope cost him about \$1500.

"SPOTZENSTREEKS" is politely informed that while he is to be pitied, he is also to blame for not using the means at his hands. Messrs. Cramer, Carbutt, Seed, Eastman, Stanley, or any dry-plate maker will send him detailed instructions if he will apply for them. No set of manufacturers has ever done so much to inform their patrons as our American dry-plate makers have.

YELLOW prints come to Mr. C. Worall. Flandreau's hypo eliminator will positively prevent them—if it is applied.

### PRIZE POINTS.

SINCE the prize competition is to be and there is a prospect of a generous but fierce rivalry, we have determined to do all we can to help our readers to win every prize. In other words, we want every prize-taker to be a reader of the PHILADELPHIA PHOTOGRAPHER.

If there are those among our patrons who intend to compete then what follows is for their help. The one thing above all others which the general photographer needs is to free himself from the crudities of style into which he has fallen—or it may hap from the misfortune of having no style at all—and *work upon art-principles*. It is not hard to learn how, neither is it costly. A little dusting off of *Photographics* and a

light and shade, form, balance, and so on. For all that, go to him. Our present purpose is only to lead your minds toward the matter of style.

In *Photographic Mosaics* for 1888, as frontispiece the Moss Engraving Co. present three excellent Mosstypes which are equally excellent for our present purpose of illustrating what we have to say. We will assume that there are three grades of pictures which



reperusal of its art lessons; a further study of *Quarter Century's* art chapters, and now a thorough absorption of all the points laid down by John Burnet, will be enough for any technically good photographer to start with. All the rest must be obtained by practice—by the application of what you have learned, to the production of results.

We are not about to repeat Mr. Burnet now, and go over his ground by attempting to instruct in the forms of composition,

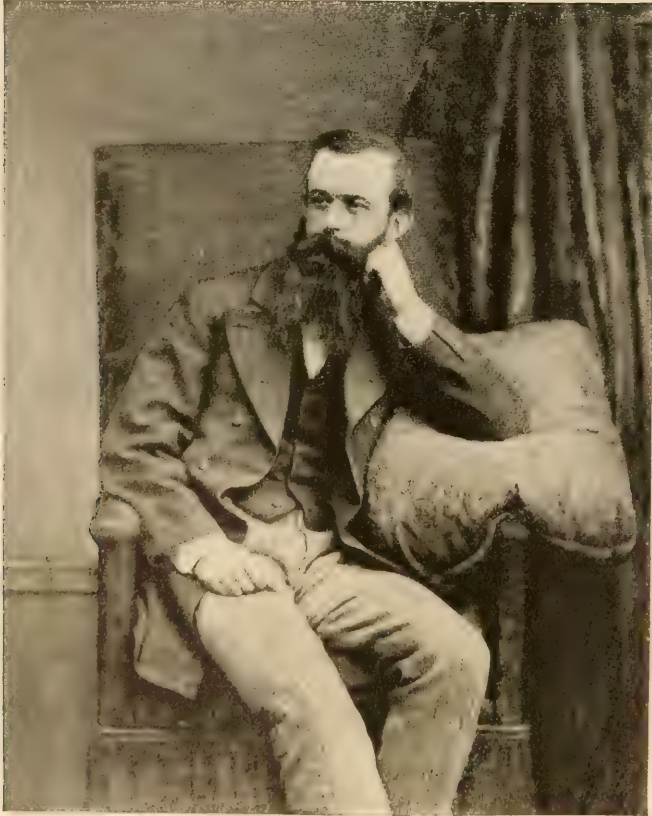
may be safely offered to the juries of the P. A. of A. next season with a reasonable hope of capturing the prizes. The first of these we may call the extremely simple, or natural, as beautifully exemplified by Mr. P. H. Rose's fine prize picture "The Little Rose-Bud." Apparently the dainty miss, has came in from play, seated herself without the least attention to arrangement, sun-bonnet thrown back, while she seeks companionship from one of the broad plaid strings during

the ordeal of the awful seconds required to catch her lovely image. And yet, we know that there was a most careful attention to the arrangement of the picture, in every respect, to make it comply with the exactions of art rules. Take your art-measure and you will see that, so far as photographic technique would allow, "The Little Rose-Bud" is a grand art success.

A more ambitious picture is the study

sidered in turn, and then, the figure arranged the curtain was introduced, the feet placed so as to secure the pose, the arm sustained by the cushion, and, last of all, after the face was directed, the light was driven where wanted and the exposure was made.

An arrangement of this kind might almost be classed as *genré*, if we accept it as a quiet picture of the thoughtful editor, but, as a rule, the *genré* picture is still more



from the studio of the lamented Adam Salomon. We were there when it was taken and sat witness to the care of the talented sculptor who made the pose. "The lines," one and all, were arranged with minutest care. The matter of balance was particularly enforced. The two lappels of the coat were made to oppose—so the arms. Sleeves, cuffs, trowsers, legs, hands, all, were con-

ambitious. We find a capital example of this in Mr. Landy's "Man Know Thy Destiny," the *Blair Cup* prize picture. We reserve what we want to say concerning it critically for our March number when this fine work will be represented in our prize-takers' mosaics. Meanwhile, we present it as our third example of style, the most pretentious of them all. It has its defici-

encies; and to enable you to study them out, we add one rule only from Mr. Burnet's essay on "Composition," page 9, where he says: "By making the circumstance from which the story springs a strong point (either from situation, force, or color), and surrounding it with those objects more immediately connected and most illustrative of its effects, the picture explains itself at a

though so imperfectly, to explain, namely, that there may be style, art, and the expression of genius in the simplest arrangements and compositions. Art does not consist in imagining a subject and then surrounding the picturized human part thereof amid a grand collection of incongruous accessories. Not by any means. The acting of Joseph Jefferson and that of



glance. . . . I do not mean that the circumstance ought always to occupy the centre, any more than that the hero ought always to occupy the centre; but as it is of use to explain the cause of his action and expression, it has, in my mind, a prior claim to consideration."

We believe now that the thoughtful reader will understand what we have tried,

a buffoon in a dime show, you will agree, are different. The man who *acts* the most, acts the worst. The lovely nature-pictures of Howell's and the wild improbabilities of Rider Haggard are not alike by any means. The rules of art are followed by all—but don't be misled.

Let your pictures tell all they should, but be careful how they tell.

[Translated for *The Philadelphia Photographer*.]

## ALUM IN THE HYPOSULPHITE BATH.

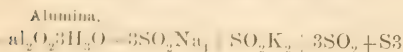
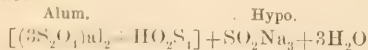
BY L. NOTHOMB.

I make a bath composed as follows :

Water	. . . .	1000 parts.
Hypsulphite	. . . .	150 "
Alum	. . . .	50 "

I first dissolve the alum in 600 parts of water, which I add to the 400 parts of water remaining, in which I have dissolved the hypsulphite. When cold water is used, a slight precipitate is found. After settling I decant. This bath fixes well and in summer prevents any blistering. There is incomplete reaction at the *ordinary temperature* between the alum and the hypsulphite. The clear liquid contains alum and hypsulphite, as it precipitates by the ammonia, and deposits sulphur by an acid. I then make the same mixture, but this time at a temperature of about 140° F. The precipitate is more abundant, the bath is less rich in alum. It preserves, however, the properties of a fixing alum bath. Moreover, the liquid does not become turbid even after a rest of three weeks. The preceding bath on the contrary, was constantly becoming turbid; after each filtration the action slowly continued. Finally, I made the same bath, but heating the mixture to *ebullition*. The precipitate formed is abundant and contains all the alumina. Nothing remains in the filtered liquid but an excess of hypsulphite with the soluble salts.

Here is the reaction which has taken place :



The precipitate contains hydrated alumina and sulphur. Sulphurous anhydride has been thrown off, easily recognized by its odor. I am of the opinion, consequently, that, in summer when using the alumed hypsulphite, there is an advantage as regards the preservation of the bath to make the mixture at from 122° to 140° F. There remains then sufficient alum and when the bath is getting cold there is little

or no reaction. I tried this bath in my laboratory, *which is very hot*, with Lumière plates. With the hypsulphite without alum there was complete and rapid raising of the film. Whilst with the alum fixing bath all raising was prevented. I must add that Captain Gody, Professor of Chemistry at the Military School, is entirely of my way of thinking.—*Association Belge de Photographie*.

[Translated for *the Philadelphia Photographer*.]

## PHOTO-SCULPTURE.\*

BY M. LAZZARD.

I TAKE two photographs of a subject at an angle of 45°. The subject is lighted by a luminous source emanating from a focus of small surface, whose rays pass through a frame, on which are stretched very straight and uniform threads. This frame is placed very vertically and very squarely in front of the model. The sensitive surfaces of the camera should also be very vertical. The clichés obtained are placed vertically in the projecting lantern and thrown on a screen, also placed vertically, but inclined to an angle of 45°. By means of one of the points of a special pantograph one line of the projection is followed, whilst the other marks the same profile on the plastic matter. When one profile is hollowed out, the chariot that carries the plastic matter is made to move in two directions, one to place the second profile at the required distance from the first, the other to bring it to its level, as the angle of 45° adopted for the making of the cliché has caused the point of departure of the profiles to be too far back. I have said that a special pantograph is necessary. This instrument consists of two frames of wood or iron hinged together, and also attached by hinges to the table which carries the screen. One of these frames, the one which does not touch the table, carries two long points, one of which hollows out the plastic material, whilst the other follows the sinuosities of one of the profiles of the projection. It is necessary that the rods of these frames should be very solid and strong, their

\* Communication made to the French Photographic Society.

volume should be 0.05 m. on the side for a frame having a side of 0.50m.; this is to prevent the pantograph from bending by the rubbing of one of its points against the screen, and the point which bears upon the plastic material might pass before the other if this last met with resistance in moving on the screen. When all the profiles of one of the negatives have been hollowed out, the other is taken up, but care must be taken to replace it in the projecting lantern, in order that the second profile should coincide with the one already made. The whole figure may be made by the same process, but as the modelling of a dressed subject does not require much precision, it is easier to model it either with the aid of photographic images or in getting the person to pose before you.

(Translated for *The Philadelphia Photographer*.)

### COPPER-PLATE PHOTO-ENGRAVING.

CHEMICAL engraving on copper plate is destined to have extended use, especially for fine reproductions. This mode is but little practised because it presents serious difficulties, which, however, are not unsurmountable. Here are some experiments which were more successful than had been anticipated. The following solution is first prepared :

Distilled Water . . .	100 parts.
Gelatine . . . . .	6 "
Bichromate of Potash . . .	2 "
Bichromate of Ammonia . .	2 "

As this solution is very strong in bichromate, an exposure of from 12 to 20 minutes according to the clichés used, is sufficient to obtain the print. Three clichés are made, identical in size, of the same subject; it is even necessary that the plates receiving them should be uniform and smooth on the edges. These clichés will be positives and not negatives; if made with collodion the time of exposure should be less for each cliché. The first should be strengthened with bichloride of mercury, the second with nitrate of silver, and the third developed in a simple iron bath. If, on the contrary, the clichés are made with gelatino bromide, the operation must be reversed. Let us admit

that, for the first cliché, the exposure has been of two seconds, it should be of three for the second, and of four for the third. When the gelatino bromides of a good manufacturer are used it is useless to strengthen them; if the exposure has been sufficient for the first cliché it will become the strongest; the last will be the weakest. Then take a very plane and polished copper plate, or one may do the work by using first fine emery paper, and then charcoal and water. Clean with alcohol and ammonia, and then dry. Heat the plate without any preparation, coat it with the sensitive film, very thin, and dry. When cold, expose under the strongest of the positive clichés, which requires at least twenty minutes; develop in cold water and allow to dry. Border the edges of the plate with a strip of soft wax and pour perchloride of iron at 44° over all its surface, watching carefully the action, which should not last longer than from two to three seconds. The perchloride is rejected, the plate is washed in warm water, then in pure ammonia to remove the gelatine film. The operator should make a mark on the copper, so as to place the second cliché exactly in the same spot that the first occupied; this observation is of the greatest importance. When the plate has been again well cleaned it is heated and a second sensitive coating is poured over it. After drying expose for fifteen minutes under the second positive. Develop, dry, and proceed to the second biting, increasing by two or three seconds its duration, and adding a few drops of pure nitric acid; proceed in the same manner for the third and last lighting. For the third cliché an exposure of from six to twelve minutes should suffice for obtaining the image, but the duration of the biting, and the drops of nitric acid should be slightly increased.\* Several times printers have asked us why chemical engraving is not done on copper, as it is done on zinc. Here is the answer. 1st. It is necessary to have copper plates of a certain thickness, which are relatively more costly. 2d. The bitings require more

\* These operations certainly offer some difficulties, but with perseverance and care a certain result may be rapidly reached.

time. Outside of these two causes it is possible to apply to copper the same mechanical processes of engraving as to zinc. We regret that we do not find electro plates made by the bichromatized gelatine process; it might be done without much difficulty, and we call the attention of workers to this point. In the meantime we will make known the results of our observations, persuaded that they can be made useful for copper plate. Let us begin by explaining what we understand by galvanoplastic copper plate. Take very strong gelatinized paper covered with a thick coating, fix with thumb tacks a square of paper on a level board, wet slightly the gelatine coating, allowing the water to be absorbed; after drying, flow a second coating thus composed:

Distilled Water . . .	150 parts.
Gelatine . . .	20 "

When the film is set the sheet is hung up to dry protected from the dust. After desiccation immerse it for from ten to fifteen minutes in the following bath:

Water . . .	500 parts.
Bichromate of Potash . . .	15 "
Bichromate of Ammonia . . .	10 "

Dissolve and filter.

The sheet is again allowed to dry and exposed under a positive cliché; the exposure lasts from thirty-five to forty-five minutes, after which develop in cold water during from two to three hours, then allow to dry.

Before being entirely dry take an impression in wax to make an electric plate, which, certainly, will have the desired depth. For the electro in relief, intended for typography, it is certainly more easy to arrive at a satisfactory result than for copper-plate. The preparation of the gelatinized paper is the same; expose under a negative cliché and develop in cold water, changing it three times. With the second water add a little liquor ammonia, but add nothing to the third. Before the sheet is dry, take an impression to make the electro, which should be rather thick, so as to complete the work by a second operation, which consists in running zinc in the place of the type matter.

Then ink the electro with ink No. 2 and bite once or several times with the following solution, after having placed a border of wax around the edges of the electro:

#### *First Biting.*

Ink, heat, allow to cool, and pour over the plate:

Perchloride of iron at 45°, a sufficient quantity to cover the electro, allow it to remain for from three to four seconds only, then wash in water.

#### *Second Biting.*

Ink, and strongly heat, allow to cool, pour a second time some perchloride, to which a few drops of nitric acid have been added; this lasts from five to six seconds. Should great whites exist in the print, coat with a film of ink, diluted rather thick, all that is to be no longer bitten, and if the copper is rather thick, continue the bitings by adding each time to the perchloride a little nitric acid. Should the copper be uncovered in some places, without sufficient depth, make a few bitings in a bath of nitric acid at 15 per cent., care being taken to protect the lines by an inking to be followed afterward by a sufficient application of heat.

These operations, well understood and well conducted, give good results for line drawings.

#### *Direct Photo-engraving in Relief on Copper.*

Carry a plate of polished copper into the dark-room, and coat it with the following sensitive solution:

Distilled Water . . .	100 parts.
Gum Arabic . . .	10 "
Bichromate of Ammonia . . .	4 "

After drying, the plate is exposed to the action of light under a strong negative. Then the whole is covered with a very thin coating of asphaltum, and a little siccativ diluted in benzine. After drying immerse the plate in pure water, in which it should remain for five to six hours. This, in most cases, is sufficient to dissolve the sensitive film, through the asphaltum, at the places at which the light has not penetrated, as well as the varnish over them. Then make sure that the portions of the sensitive film which have received the light have entirely

disappeared. For this purpose use a solution capable of coloring the remaining parts. If the disappearance be not complete, place again the plate in water for some time.

When this operation is ended, the relief is obtained by means of a solution of chloride of iron thus composed :

Alcohol . . . . .	200 parts.
Chloride of Iron . . . . .	60 to 100 "

Should the relief not be sufficient, recourse must be had to the usual processes to give it the necessary elevation.—*Moniteur*.

### OUR PICTURE.

The *German Peasant Studies* which embellish our New Year number are reductions from nine of the series of 11 x 14 pictures which were exhibited by Mr. Oscar Suck, of Carlsruhe, Germany, at the P. A. of A. convention held in August last at Chicago. Mr. Suck was awarded a first gold medal for his exhibit. The selections we have made fairly represent the picturesque peasant costumes of the lovely land in which Mr. Suck lives, and form the second instalment of the Prize Takers' Series which we have agreed to publish. Any one visiting Carlsruhe on "market day" will see a grand variety of such people and costumes, of which Mr. Suck's splendid market-day view, given in our number for October 15, scarcely gives an idea, and yet even the quaint market of Carlsruhe does not supply all the varieties Mr. Suck was ambitious to secure. In a private letter, he tells us that he not only persuaded the good peasants who came in to market to visit his studio in their "market best" (or worst) but he also hired them to come with their whole stock of wardrobe material and to pose in various characters and attitudes. Sometimes it was very difficult to propel any æsthetic interest into the well haired and phlegmatic skulls of his chosen subjects, and instead of coming, as he desired, in their most picturesque and most quaint habits they would present themselves in their "Sunday best," and thus dampen his ardor and delay his scheme. But by persuasion, by persistence, and by purchase, he at last obtained the unique collection of nearly one hundred pictures he

exhibited at Chicago. We regret that more men were not included, for to get quality we have had to make our choice from the female persuasion. We have a neat variety ranging from the *Fungfrau* drinking *Ge-sundheit* to her lover, on through the scenes of the home and harvest-field to the poor *Alt Mutter* who, after all the rest is trying to preserve what reputation she has gained by peddling pastry and keeping up her acquaintance. There is a lot of sentiment in every picture and each one shows the individuality of the talented artist who has produced so much from such unsympathetic subjects. We give Mr. Suck's work the place of honor in our new volume because we desire that our patrons who are afire with artistic sense, may also feel in this direction of work and produce the equal of what is before us. Our country is full of subjects and we shall show some grand attempts at them in our numbers which follow. A little looking around, a careful reading of *Burnet*, and some patient effort, will soon make it entirely unnecessary for us to import genre studies from Germany. And when the student understands the rules of art so clearly laid down by Mr. Burnet, he will see that every one of Mr. Suck's lovely pictures has been made *after the rules*, and are, therefore, well and carefully made. Hence, their artistic charm as compositions.

On the subject of *Composition*, Mr. Burnet's preliminary remarks are as follows :

#### COMPOSITION.

"By composition is generally meant the form and arrangement of the several parts considered as a whole; consequently, the form or plan of any composition is the first process the painter or art photographer practically commences with. The nature of the subject having been settled, he weighs in his mind the effect to be produced upon the spectator; he, therefore, arranges his figures and objects accordingly, and endeavors to distribute his materials in that form which will best accord with his intention. The illustration of his story, the distribution of his light and shade and color, the localities of the scene, all present their individual interests to his notice; while his imagination embodies them into that con-

gregated form which seems best calculated for his purpose. Here it is, that the artist's memory is called into action; without precedents he cannot judge, without materials he cannot compose. Having now laid down his plan of operations, he applies to nature to furnish him with the means of giving variety and originality to his work; but to bind her to his purpose, he must have a settled knowledge of what he is seeking, he must have a quickness of eye, to take advantage of accidental arrangements, and a plan of methodizing his ideas, so as to be able to secure what he acquires, without which it would be impossible to produce a composition upon which he can calculate with any degree of certainty as to its effects or its stability, and what he paints one day he may obliterate the next. Composition not being an inherent quality of the mind, but the result of long acquaintance with the nature and arrangement of the compositions of others, it generally follows that all wayward and capricious compositions, established neither upon natural grounds, nor upon the scientific arrangements of those who have preceded us, seldom outlive their inventors, for, pleasing only by reason of their novelty, they gradually lose their interest as that novelty vanishes; or, as Dr. Johnson expresses it, 'the irregular combination of fanciful invention may delight awhile by that novelty, of which the common satiety of life sends us all in quest; the pleasures of sudden wonder are soon exhausted, and the mind can only repose upon the stability of truth.'<sup>1</sup>

The silver prints were made upon the famed N. P. A. paper imported for us by Messrs. E. & H. T. Anthony & Co., New York. Messrs. Roberts & Fellows, Philadelphia, Pa., were the printers.

### PUZZLED PHOTOGRAPHERS.

A PHOTOGRAPH was taken in a sitting-room up town, a few weeks ago, that has been puzzling amateur and professional photographers alike ever since. The artist

was W. Curtis Taylor, one of the most experienced photographers in the city, and the subject was a group of eighteen young ladies. It was not a good picture, because several of the ladies moved, and Mr. Taylor had them sit again, but he finished up the negative and took a proof print from it, and then he saw several queer things in it.

On the extreme right of the group one lady stood partly against a white door, while another lady sat directly in front of her. The clear outlines of their faces show that neither of these ladies changed their position during the exposure of the plate; nevertheless the edge of the door frame, which appears above their heads, is continued, without a break, down through the hair of the lady who is standing, just misses her eye, and loses itself in her chin; while the panelling of the door shows through her shoulder and through the hair of the lady sitting in front of her.

Two ladies stood against the closed shutters of a bay window. Both their faces show distinctly in the photograph, but the lines of the moulding appear through the hair of both. The light struck this section of the window. Two other ladies stood—one against a dark section of the window, the other against a part of the frame which shows light. Both faces are badly blurred, but in neither case do the lines behind them appear on their portraits.

In all these cases in which the young ladies appear so alarmingly transparent, photographers say there is only one way to account for the mystery—the ladies must have moved long enough for the high lights behind them to impress themselves on the sensitive plate, which they will do, under certain circumstances, like a flash. The obvious fact that to do this some of them, especially the lady first mentioned, must have swung their heads and shoulders through an arc of forty-five degrees, is not permitted to interfere with the hypothesis.

But the hypothesis, such as it is, breaks down completely before the problem presented by the central figure of the group—a lady sitting in a deep comfortable arm-chair with a solid back of wicker-work. She could not have moved out of that chair without falling out, and her beautifully

<sup>1</sup> For illustrated descriptions of the varied forms of composition and the rules which govern their use, see Mr. Burnet's essays.

clear portrait, the best in the group, shows that she must have sat like a statue; yet through her face, through her neck, and through her body all the way down to her waist, the wicker platting of the chair-back is seen almost as distinctly as if there were nothing between it and the lens. The lady's body appears as a dark shadow projected on the lighter surface of the chair.

When asked to explain the phenomenon Mr. Taylor promptly gave it up. The proof has passed through the hands of a number of photographers, both professional and amateur, and was discussed at the recent meeting of the Amateur Photographers' Society, and always with the same result. As a last resource it was submitted to A. K. P. Trask, the photographer of the Seybert Commission, who has made a special study of ghostly photography, and can turn out "spirit photographs" in any quantity to order. He accepted the movement hypothesis as to the door and window lines, but when his attention was called to the wicker chair he confessed that it was beyond his philosophy, and he could not account for it.

This is the way the case stands now. The photograph cannot be accounted for under any of the known laws of matter; though it may have something to do with the "fourth dimension" for which some theorists contend. It is not a "spirit photograph;" for if it were, Mr. Trask would recognize it, and, besides, building material and articles of furniture do not have spirits. None of the known laws of optics seem to meet the case, and for the present it remains a curious scientific problem.

The above, from the *Philadelphia Inquirer*, has been going the rounds of the local press. A copy of the strange picture is before us. Concerning it Mr. Taylor, the veteran artist, writes us as follows:

"Our friend J. C. Browne went with me later to the house and saw the two ladies most concerned. We conclude that the cap fell off before they—those two—were settled, and while the others were in position; that when that instant occurred the two were leaning over, hence exposing to that extent the object behind. Neither the ladies nor myself remember either their

leaning over or the cap falling off; but that must have been. The curious part is, that while there was time enough to show some little detail even to the fringe of a red and olive lamp shade in the darkest corner of the room, and to the brown wicker chair-back in the centre, there is no trace of the white face and dark ground of the lady on the extreme right (through whose head the door shows), nor of the illuminated face and hair of the lady in the wicker rocking-chair. Where were these parts of their figures while they were leaning forward? Or, rather, we suppose where they were, but we are surprised they do not show.

"Yours respectfully,

"W. CURTIS TAYLOR."

[The print is very curious, but we incline to the opinion that the "cap" could tell if it would only *un-cap* again.—ED.]

Mr. Taylor also sends us a composite picture of which he says:

"Compare this composite of thirty-two of our medical students with students in the November *Century*, and see how like they all are. As I said two years ago, "the destruction of individuality is the destruction of force." They are all the same nice-looking girl and no more. But take different likenesses of the *same* person, then you get something of value."

### SOMETHING NEW—TRANSFER-ROTTYPES.\*

BY G. HANMER CROUGHTON,  
Rochester, N. Y.

In the face of the old quotation, "There is nothing new under the sun," it requires some amount of boldness to claim even a new use for a well-known and extensively used process, such as the Eastman film, but I think I can safely claim that the methods I have adopted to attain certain results which I am about to describe, may be classed under the head of something new.

Whilst quite satisfied with the results obtained upon Eastman's permanent bromide paper as a basis for finished work of all kinds, there are many materials upon which

\* Paper read before the Photographic Section of the Rochester Academy of Science.

artists' work would be completely ruined by contact either with the bromide of silver in the emulsion or the chemicals used in developing and fixing; to say nothing of the difficulty of coating such materials with the emulsion as the paper or plate is coated.

I was induced to experiment by the difficulty encountered in coating with emulsion, one of the oval plaques used for painting upon china with colors. I found it was impossible to get an even coating, and the thought suggested itself, if I could get a positive upon the Eastman film and transfer it to the plaque as a film negative is transferred to glass, I could secure the result desired. Such a positive was made in the enlarging camera, developed in the usual manner, and, after being well washed, was transferred directly to the plaque without substratum of any kind. After about half an hour it was placed in a dish of hot water, when the paper came off, leaving the picture on the plaque. When dry the picture retained the surface of the plaque upon which it had been transferred.

The success which attended this experiment led to further trials upon other materials and surfaces, all of which were attended with the same successful results. Now being satisfied that here was a process which would be almost limitless in its application, Mr. Eastman had some positive film coated expressly for this purpose, having qualities which experience has demonstrated as being essential for this work. The experiment with this film, which he has named "transferotype," having been entirely satisfactory, and the perfected paper being in the market, I will describe some of the uses to which it can be applied.

As an artist, of course, my thoughts first turned to materials used by artists as a basis for their painting. Here it is that a great advantage is obtained by this process, for it must be kept in mind that the final support, whether it be porcelain, ivory, paper, or any other delicate material, does not come into contact with any of the chemicals used in the production of the picture. The paper, which is the support of the gelatine film during the process of coating (with the bromide emulsion), after developing, and fixing is removed, leaving nothing but the

image, which is enclosed in a fine film of gelatine but  $\frac{1}{5000}$ th part of an inch in thickness, with the added advantage that this thin film of gelatine reproduces exactly the surface to which it is transferred. For instance, if transferred to the surface of a polished plaque the surface of the print is polished in exactly the same manner, while if transferred to ground opal, the ground surface is produced.

Another advantage is, that you can cut away any undesired part of the picture, and transfer the remainder. This, to an artist, is an advantage which cannot be too highly estimated.

For instance, you wish to paint a portrait upon ivory, but the background of the photograph is too dark to enable you to get the transparent effect of color, which is the great charm of an ivory painting. All you need to do is to make the print in the usual manner on Eastman's transferotype paper, and let it dry; when dry the background can be cut away with the scissors, and face and figure transferred to the ivory in the position desired, by simply wetting the picture and squeegeeing it upon the ivory. After standing out for thirty or forty minutes, a bath of warm water will detach the paper, and leave the print upon the ivory. So thin is the film which contains the picture, that it is almost impossible to detect the edge of it by passing the fingers over the ivory.

Another advantage is, that when once transferred, you can with a sharp knife scrape away any objectionable parts without chipping.

As the film will attach itself to any surface except a greasy one, it can be used for pictures on ordinary drawing paper, porcelain plaques, china tiles, opal glass, either ground or polished, the white woodware so much used by amateur artists for household decorating, ivory, canvas for oil painting, and plain glass for window transparencies and lantern slides. The only material the film has failed to attach itself to permanently, in my experience, is the ordinary artist's canvas, as sold for oil painting. The canvas must be filled with a non-greasy sizing, and then the results are all that can be desired.

As the positive film is now an article of commerce, directions being enclosed in each package, it is not necessary that I should take up space by detailing the manipulations, my purpose being to call attention to some few of the uses that this new application of the Eastman film can be applied to. A go-ahead photographer can easily see that there is a new field open to him, and that he can push his business by it in a number of ways. The ease and certainty with which opal pictures can be made, and the beauty of the results (which are far superior to those produced upon plates coated with emulsion), must bring these pictures into favor, and the photographer who happens to make a failure will only lose one sheet of the transfer paper, when by the old method he lost both coating and plate, as it was impossible to get a clean opal after the plate had been in contact with the bromide of silver.

In every locality there are numbers of amateur artists who would be glad to get a portrait transferred to any of the materials used for decorative purposes, such as white wood, palettes, panels, etc., in fact, a hundred different things made in hollywood, around which they could paint wreaths of flowers, or anything else more appropriate. Then, again, nothing looks prettier as a window transparency than a vignette portrait.

For magic lantern slides, it is by far the best method of using the gelatino-bromide process. Slides so made are more like wet plate slides than any dry plates I have seen. With the ordinary transparency there is always more or less veiling in the parts that should be clean glass; this is entirely absent in a transparency made on the transferotype paper, the film of gelatin being so thin that the clear parts are absolutely colorless, and the effect in the lantern is simply perfect.

I think it is safe to predict that this method of making transparencies for the lantern is destined to supersede all others. Experiments are in progress by which the metal of which the image is composed can be substituted by one that will stand the firing and glazing. If perfectly successful, this will be the simplest and best process of ceramic photography, but failing this, a

very good imitation of burned in tiles and plaques can be made by simply coating the picture with damar varnish and heating in an oven till hardened, when it can be washed without injury.

Many applications of this method of decorating china or pottery will suggest themselves both to the professional photographer and to the amateur. The latter can reproduce the scenes of his summer vacation upon glazed tiles and decorate his open fireplace with them, thus recalling the pleasures of the past summer whilst enjoying the warmth of his winter fireside.

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## NOTES FROM PARIS.

BY F. H. W.

ART and photography are a great deal nearer each other, here in the very chief temple of the former, the art capital of the world, than they are with us. I do not think there is an overwhelmingly greater quantity of art in photography over here; I have already refused to cry the standard of American photography very low, remembering what names are on it, before the work of our European brethren. But there is certainly a great deal more of photography in art. And it is in the art of the younger school, the growing school that will be the leading one in the natural course of progression; so that the photographic tendency is not a relic nor an exception, but is living and growing.

It is among the younger men that it is for the most part to be noticed. The older schools of classicism or of costume and prettiness include most of the older painters. And, on the contrary, the younger men are breaking away from these and their traditions, and either painting fluttering costume pieces, and flickering gardens and landscape without any conviction at all; or going in seriously and earnestly to set forth the aspects of modern landscape and modern life as they present themselves to their eyes. "Draw the object before you absolutely as you see it," was one of the maxims constantly sounded in their ears at the schools; why not make its application a little wider and try this in their pictures? Not neces-

sarily everything absolutely as seen, but at least only what absolutely could be and had been seen—not mechanical nourished prettiness, or impossible and uninteresting Greeks and Romans in entirely threadbare situations. So modern life began to appear again on canvas, and the conviction that only the things of the centuries past or of the imagination were fit for art began to be shaken. To-day there is a vigorous school that paints nothing else, and does not lose a jot of its art in doing so. We see the life of the day, the streets, and the markets of Paris, its parks and its buildings, and in landscape, of course, above all. And very far is this from mechanicality and what the unbeliever means when he says, "photographic;" on the contrary, there is a life and a vigor in this work, a vivid reality and substance not attained to by any other class.

One of the most noted pictures at the Salon of 1886 was a superb lake and mountain, by a young Norwegian painter, by education of the younger French school. It would have been condemned by the critics as "mere imitation" a few years before; but then it received the praise due to its perfectly rendered sentiment and splendid workmanship.

Every one of the great photographic ateliers of Paris proclaims unmistakably to the visitor that it is a place where art is being sought and appreciated. The facade of one of the largest bears two great panels in terra-cotta—on one side of the entrance Science, on the other Art—the two powers that associate and aid each other in the production of the work.

M. Albert Londe, director of the photo. department at the Saltpêtrière, has just published an amply illustrated work on *La Photographie Moderne*. It is rather a history and general account of recent advances in the art-science, than a practical manual. As such, however, it contains some items of interest, and some of the illustrations are excellent.

### AN OPEN LETTER.

BY A. E. DUMBLE,  
Rochester, N. Y.

Oh! Howadji. We have just been reading your last article in the *Century* on

"Galilee." How much we are indebted to you!

Of all the gentle pleasures we have promised ourselves, in this life if possible, and if not, then certainly in the next (if such things are permitted us) a walk over the hills and by the shores of Galilee is the sweetest, the very sweetest of all.

Galilee! Capernaum! Magdala! Bethsaida! Will our mortal feet ever traverse thee? Will we ever lie down, not entirely forgetful of centipede and scorpion, and watch the "Stars on the sea where the blue wave rolls nightly on deep Galilee?" Will we ever, while giving unwilling "back-sheesh" to his majesty the king of the fleas at Tiberias, ever turn wearily on the other side and murmur as we look off toward the mountains, "Is there any balm in Gilead?"

We confess, my dear Howadji, that with cabinets at \$3 per dozen the outlook does not seem favorable as yet for such a trip; yet I do not mourn as one without hope. Like every photographic Micawber of this war-worn profession, I am still looking "for something to turn up." Who knows but the P. A. of A. may brace up and show some valid reason for its existence? Perhaps, by lucky chance, it may next summer do something tangible that will raise the status of photography as a profession. It might begin easy by putting us on a better footing, now say, with regard to insurance. For instance, I have twelve years of fine negatives; like old wine, the longer the stock is kept the more valuable it is. It returns me the interest every year of about \$10,000. Now, I cannot get more than \$500 insurance on my negatives. How easy for the P. A. of A. to manage this thing. Besides there are other things of the same character that the P. A. of A. should take in hand. I pay a greater rate of insurance on my gallery than the china store does down the street. Why? Because years ago we used alcohol, ether, gun-cotton, etc. No use in one man arguing with the insurance companies. *When will the P. A. of A. do it for us?* Why does it not give us a raise in prices? Ask the old, old question, we are too timid to broach it; but what Oriental dreams might we not indulge in with cabi-

nets at \$6 per dozen? If we could only see it! If we could only put a Hoo-doo upon our mental vision and catch a glimpse of even the modest middle distances of futurity we might take heart of grace and ourselves plan to expose a few plates down there in the land of Jordan.

But excuse the digression. Our pleasures and prices are so intimately connected that it is difficult to separate them. Your article on "Galilee" has performed the old miracle over again. It has been as the "Five loaves and two small fishes" and has fed the 5000 longings and imaginings that have possessed us. The limits of a magazine article after all present but a scant meal for what may be an abnormal appetite and we would have more. Tell us, Howadji, tell how, where, and what you ate? Did you go to a first-class restaurant or did you build a camp-fire and do your own cooking? Did you wrap yourself in your blanket and in your sentiments and lie down where the sacred airs of Galilee might say "Peace" to your eyelids? I like to believe that you did the latter, and that you lay where you might inhale the sweet fragrance of the "rose of Sharon," and of the "lilies of the field," where your last wandering glance and your thoughts might be guided by the shepherd stars into heavenly meadows.

Then we would know if you carried fish hooks and line in your pocket? Did you sit on some jutting rock and throw far out into "Genazeroth" or fish from the side of a boat and think of how they did it there eighteen hundred years ago? We would know just what sort of fish they have in that ancient sea of Tiberias; and if the water is clear like our New York lakes or opaque with the Jilt of Yarmuck. And, in confidence, did you leave all care behind in the sanctum in far away Broadway? Whilestrolling with uncovered head along the borders of Zabulon and Nephthalim did that abominable subscription list rise like a sheeted ghost before you? Did the Evil One remind you of that little bill that was not paid you, or that which you forgot to pay before leaving? Did the tares grow thick among the wheat as you sowed for the harvest in the land of Herod Antipas?

You blush, Howadji; but then you always did blush like a schoolgirl. Forgive all and answer like a man, for we would know just how *we* may act when we go there bye and bye.

[If our warm-hearted and enthusiastic friend and good photographer will watch our progress in the *Century* and *Scribner's* magazine of 1888 many of his queries will be answered. As to *prices of photographs in Palestine*, they are as low down in the scale as the people who live there are.—ED.]

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### SOCIETY GOSSIP.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA; THE NEW YORK SOCIETY OF AMATEUR PHOTOGRAPHERS; THE BOSTON CAMERA CLUB.—Boston, December 3, 1887. Dear Sir: The above societies will hold, in this city, in the spring of 1888, their second joint exhibition of photographs. Members of your society are invited to send examples of their best work, both prints and lantern slides, for competition. The rules, date, and place will be announced in a circular to be issued in January. The rules will be substantially the same as for the exhibition held in New York last spring. This preliminary circular is sent now to your society in order that your members may be in readiness to forward their work promptly on receipt of advice of rules and date. The exhibition will probably be free to the public, and remain open for about one week. Foreign prints may be sent unmounted, on wood rollers, by mail. The Hanging Committee will have them properly mounted and framed.

Please bring the above to the attention of the members of your society, and advise the undersigned at an early date as to what we may expect from them.

Respectfully,

EDWARD F. WILDER,  
Secretary Boston Camera Club.

50 BROMFIELD STREET, BOSTON, MASS., U. S. A.

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### THE WORLD'S PHOTOGRAPHY FOCUSSED.

MR. W. H. MALLOCK, the well-known English novelist, makes a point for photog-

raphy in a recent number of an English journal. Referring to the difficulty of obtaining reliable and unprejudiced testimony in the case of recent disturbances in Ireland, he suggested that the constables on duty be armed with detective cameras. An instantaneous capture of a crowd armed with bludgeons assaulting the force, or of bricks in the air, would carry conviction to the jury. He makes the suggestion in all seriousness; and it would not be the first time the camera has rendered excellent service to the cause of law and order.

GUSTAV ROBERT KIRCHKOFF, the discoverer of spectrum analysis, died, after very long suffering, on the 17th of October. He was 62 years of age, and his memory will be revered, and his fame last, as long as the world stands.

THE death of R. Hunt, Custodian of the Mining Archives in the Museum of Practical Zoölogy and Professor of the Mechanical Sciences in the London Academy of Mines, is noted. He was one of the oldest investigators in the province of photography. In 1844 he published a treatise on "Light," which has been of great service to his successors in their researches. He reached the age of eighty.

THE Photographic Society of Berlin celebrated its twenty-fourth anniversary in November last.

THERE is to be a General International Convention in Science and Trade at Brussels in 1888.

THE *Photographische Rundschau* gives some useful hints to amateurs on the arrangement of the dark-room. This very pretty journal, the organ of the amateur photographers in Vienna, has an exquisite picture of the Black Sea, in the Zillerthal, as its frontispiece. It is a chloro-silver-gelatine print (on Dr. Just's paper). The Schnell-copying apparatus (Patent Schlotterhoss) of Max Heltl in Judenburg, was used.

## PRACTICAL POINTS FROM THE STUDIOS.

TO UTILIZE OVEREXPOSED NEGATIVES.  
—At the October meeting of the Versailles

Photographic Society, M. Buequet made known to his colleagues a process for utilizing overexposed negatives, which had become black after development, and with which it is impossible to make a print.

For this, place in a dish:

Water . . . . .	2 fl. oz. 4 drs.
Javelle Water . . . . .	7 fl. drs.

Wash the negative well on coming from the hyposulphite, then plunge it into the above bath; with the aid of a tuft of cotton passed lightly over the sensitive film, remove the black mud which is formed on the plate, and soon the negative becomes clear and transparent. Pass it through water and replace in the hyposulphite for four or five minutes. Complete the operation by washing in the ordinary way.—*L'Amateur Photographe*.

## NEW TONING BATH FOR EASTMAN PAPER.—

Water . . . . .	3 fl. oz. 3 drs.
Nitrate of Uranium . . . . .	15 grains.
Water . . . . .	3 fl. oz. 3 drs.
Red Prussiate of Potash . . . . .	15 grains.

Take equal parts and mix.

After toning the prints should be thoroughly washed.—*Progrès Photographique*.

MEM.—In testing the non-actinic qualities of yellow and green glass side by side on same piece of ammonia paper, I notice the yellow gave an *orange* tint, while the green gave a *greenish-gray* tint. I did not tone the paper.

Yours truly,

E. LONG.

ASTRONOMY. — Any photographer may make a map of the heavens. An exposure of one second is sufficient; the enlargement may be made afterwards. The image of stars to the sixth magnitude may be obtained.—*Exchange*.

DEVELOPING PLATINUM PRINTS.—It is generally recommended to develop platinum prints with the solution carried to from 80 to 100 degrees. A solution at 12° to 16° yields tones as fine and as brilliant, if not better; and it is possible by this means to obtain good prints, even those which have

been overexposed, and which would consequently be lost. The print should be allowed to remain in the bath until it has acquired the desired tone.—*Phot. Rundschau.*

**HEATING GELATINE PLATES.**—Goedicke has made a number of experiments to show that gelatine plates can bear a high temperature without injury to the latent image. At 85–90° C. a veil more or less intense is produced; at 100° this veil is so thick that the image is completely hidden. If, instead of operating with dry plates, plates are used that have been previously wet with water, the image only disappears when the gelatine melts.—*Phot. Mittheil.*

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### FACTS AND FANCIES.

MR. KEELY calls his “new” force “Vibratory Sympathy.” It is something like a frilling film, and does not present a very satisfactory image as yet.

“THE CAMERA” column of the Philadelphia *Public Ledger* continues to gather in some valuable items. The editor says, among other good things:

“The late revival of the use of hydroquinone in the development of gelatine dry plates seems likely to lead to a definite gain to the photographer, by placing in his hands another help toward the production of good work. It is probable that the full capabilities of hydroquinone have not yet been fully ascertained, and it is certain that those which it has been found to possess are not generally known. Its usefulness in the development of transparencies is admitted; but here is a case where it was found to have a still further use. John Carbutt says he was developing an experimental plate a few days since, when he found he had overexposed it, and the negative was thin in the high lights. He poured off the pyro developer which he was using and applied one made of hydroquinone. The result was wonderful. The high lights were built up in density, but so gradually that there was no fogging, and the result was a perfect negative. Some further experiments will doubtless be made in this direction.”

**ANOTHER PHOTOGRAPHIC OPPORTUNITY.**  
—The *Ledger* says:

“A movement is on foot for the purchase by the University of Pennsylvania of a property in the Bahama Islands suitable for the establishment of a permanent scientific station and marine laboratory. If this is done, it is said, it will be the first station of the kind in America.

“Another important step in contemplation in connection with the work of the Biological Department is the establishment of a course of practical instruction in photography. The department is already equipped with photographic “dark-rooms,” gallery, all necessary apparatus, etc., but it is intended early in the coming term to open courses of lectures on the Chemistry of Photography (probably by Prof. Sadtler), the Physics of Photography, Dry-plate Making, etc. In addition to these it is intended to give laboratory instruction by a practical photographer. This instruction is to be made available not only to students of the University, but to others who desire only to take the special course. The details of the new departure have not yet been settled.”

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### THE OPEN CORNER.

DEAR SIR: Skimming over the contents of *Mosaics* for 1888, before giving a full reading to the many valued articles I notice therein, I came across the contribution of Mr. John H. Hallenbeck, and being a short one I read it through. Imagine my surprise to find him recommending in lieu of an orthochromatic plate to obtain color value, to place a *ruby* glass behind the back lens of the camera; and to be sure and *note* the difference in all the details.

John is fond of a joke as you know, but if he is in sober earnest in advising his “friends in the South” to try and obtain orthochromatic effects through a *ruby* glass, I think the result on the plate, would be like unto our cat, Dot, who, being of Manx origin, has no d—tail at all.—J. CARBUTT.

YOUR very kind letter duly received, also *Quarter Century*. I am delighted with this volume, and am safe in saying that it beats everything in the way of photographic

literature—it covers the whole ground, and is by far more valuable to the photographic student, both professional and amateur, than its “weight in gold.” Our copy is beginning to be well thumbed already, as it is always open upon the printer’s desk, where every employé of the gallery can have full access to its pages. There is not the least doubt but you will have abundant success with this book, and I sincerely hope that it will be as abundant as the information you impart through such an excellent medium.—S. H. PARSONS, St. Johns, N. B.

DEAR SIR: Kindly send Burnet’s *Art Essays*. And now permit me to say that your issue which I have just received seems to me to be better than ever, and shows the perfection gained from a love of the profession and a quarter of a century photographic scholarship. I see you mention and show cuts of Kurtz, Sarony, Fredricks, etc., and this suggests the idea of your stepping outside New York City to make a list of workers who have faithfully stood with photography for that same period of time (quarter of a century), and many of them, if I can judge others from myself, liking it better than ever. I commenced May, 1861, and have continuously worked at the profession, and as new wrinkles and possibilities loom up become still more enamored with it.—C. T. STUART, Hartford, Conn.

THE following comes from Fortress Monroe. Its humor is as rich as emulsion is good with silver.

*A Pleasant Surprise.*

My Darling! “I have taken advantage of your absence of a few days in New York to have your dark-room thoroughly overhauled and cleaned up. We have washed all of the bottles, and thrown away all of the old ones which seemed of no use. There were a whole lot of strips of yellow paper pasted up around the partition (to keep out white light) which I have had washed off. We spent two days washing up and rearranging things. Just come and see how nice it looks.”—C. A. BOOTH, M.D.

THE Vienna societies have been discussing many interesting and new topics recently. Many pictures from well-known

photographers and artists were exhibited, among them the reproduction of a landscape in copper, transferred on zinc, by Messrs. Jaffé and Albert. Prof. Eder showed some of Liebert’s electric-light portraits, Janssen’s sun-photos, etc.

The death of Gustav Heitel, of Gustav Robert Kirchkroff, and of Dr. Baird were spoken of with sorrow and regret.

Among the brevities was an interesting paragraph on “The Anatomy of Venus of Milo,” as undertaken by Dr. Carl Hasse, of the Breslau University. By means of photographic and light-print pictures of this statue, its regularities and irregularities are fully shown, and its complete truth to nature.

ORTHOCHROMATIC PHOTOGRAPHY. — In this connection there is an important question to be decided. In what manner should the different colors be reproduced in monochrome? For example, how should the blues, the greens, the reds, the yellows, etc., of a painting be reproduced by photography so as to give an exact impression of the original? To represent blue or red in a dark or black tint, or orange almost white, would be highly incorrect. It is generally admitted that colors should be reproduced according to their luminosity, but this is what engravers but rarely observe, as it is easy to see by comparing the engravings with the original. It is true that painters and engravers do not all agree on this point, and the proof will be found of this when a printing is engraved by different artists.—*Moniteur*.

AN amateur puts it thus: “Please send me a copy of THE PHILADELPHIA PHOTOGRAPHER, as I would like to subscribe for some paper that will help cure a would-be amateur that has the craze very bad, and passed the first stage by getting an outfit and spoiling it. Now I am looking for help, and will get another outfit, and try it again. But don’t mean to get stuck on it as I did the first time. I think a good paper on the subject will help me more than anything else.” He shall have it soon.

DEAR SIR: What a “trusty friend” you’d make if our location were closer, and

yet you can scarcely be reckoned a stranger while THE PHILADELPHIA PHOTOGRAPHER exists. Well, then, sir, *Quarter Century* has arrived, and the very day, too, it was expected, thanks to that characteristic attention to detail of your firm, and which has obtained for you almost phenomenal success. We have dived into *Quarter Century* nightly during the past fortnight to the exclusion of almost everything else. What a wealth of information, the very latest, too, it contains. I take note that you have followed the *modus operandi* adopted in the historical Wilson's *Photographics*, viz., of giving, in addition to your own, the ideas and experiences of other leading authorities on matters photographic. I quite believe you will have some of the photographers here crossing the pond 'twixt this and the Pacific slopes, and making speed to Rochester and Cincinnati to see such studios as those of Messrs. Kent or Landy described in *Quarter Century*. One of these days I think I'll go and ferret out these giants. Unfortunately, the question of expense comes in, and, as we have the cheap John here doing all the harm he can, I must await the advent of that good time coming when the price of cabinets will be appraised at \$14 per dozen, and be immutable as the laws of the Medes and Persians.

*Quarter Century* comes to hand just in the nick of time, as I am having put for me in the neighboring colony a new studio with all the latest ideas, and I propose copying the design of Mr. Landy's studio with, perhaps, some little modifications. By the way, at page 350 in *Quarter Century* Mr. Pray states that in using Professor Newton's formula for development of dry plates you ought to use bromide of soda (when required) in preference to either bromide of ammonium or potash, and that unless you do so you will otherwise be "left." Now as the formula for Mr. Carbutt's Keystone dry-plates is almost a copy of Professor Newton's, as far as the constituents are concerned, and as Carbutt's formula permits of the use of bromide of potash I would like Mr. Pray, if this catches his eye, to explain *la raison d'être* of his employing the bromide of soda in preference to either ammonium or potash. I may say that I have

employed Carbutt's formula and have not been "left." If I remember rightly, I touched in my last letter upon the subject of imperfect packing of dry-plates; and since then some American plates have been put into my hands, and I have failed entirely with them, trying short and long exposures and getting nothing but ghosts, even with the most extravagant additions of pyro to get density. These plates I know when in good condition, to be capable of producing the most brilliant negatives, even in the hands of a tyro. It would appear from the mildew on the back of the paper boxes and the adhesions of the opaque colored paper to the film that the plates have been put up hurriedly and placed into the boxes, the paper and paste of which had not been permitted to dry thoroughly before soldering up in the tin-lined cases; hence my want of success. *Experientia docet*, so the Gaulic proverb has it, but it does seem as if some plate-makers pertinaciously refuse to profit thereby. Now, as your journal is not got up in the interest of any photographic supply-house, perhaps you will point out the warning to plate-makers of paying greater attention to this matter of packing. I did not get last year's *Mosaics* and can't procure one; perhaps some one who has got the contents off by heart will send me his last year's copy. I'll send him the equivalent in illustrated papers of Australia. I have read with interest the discussions at the Convention meeting held at Chicago. We are trying here to get up an association of photographers, and we would be very pleased to receive rules and regulations which guide you in the conduct of affairs of the American Association of Photographers. Is it known to the craft on your side that an International Exhibition is to be held in Melbourne next year. It is expected that photography will be well represented. I shall try and get hold of a prospectus and mail it to you, from which you may gather something of interest, alike to photographers, manufacturers, and dealers. I must rein in as the hour is somewhat late.—R. CREELMAN, Sidney, N. S. W.

[Will some one spare an 1887 *Mosaics* for our friend?—ED. P. P.]

## Editor's Table.

**MARRIAGE BELLS.**—The first thing on the Editor's table for the new year must be the record of a rare occurrence—rarer than a solar eclipse—rarer than the double-exposure of a plate. Only once in our career of twenty-five years as a photo-editor have we witnessed it, and it is not very liable to occur very soon again or very often. We allude to the marriage of an Editor of a photographic magazine. The following are the facts:

**MARRIED**, at No. 259 West 52d Street, New York city, on the evening of Thursday, December 1st, Miss Kate Paulding Uglow and Dr. Arthur H. Elliott, associate editor of Anthony's *Bulletin*. The ceremony was performed by the Rev. Dr. A. R. Van Nest, and a reception, with music, was followed by an elaborate supper.

Among those present were Professor and Mrs. C. F. Chandler, Dr. and Mrs. A. A. Julien, Dr. and Mrs. Louis H. Laudy, Professor J. Le Comte Stevens, Dr. Edward L. Wilson, Messrs E. Anthony, R. A. Anthony, Colonel V. M. Wilcox, Dr. R. W. Wilcox, Mr. and Mrs. E. B. Barker, Mr. and Mrs. W. H. Bradley, Dr. and Mrs. Albert P. Hallock, Dr. and Mrs. Everett S. Warner, Mr. and Mrs. John C. Laudy, Mr. and Mrs. L. C. Laudy, Mr. and Mrs. C. Laudy, Mr. C. P. Ross and daughters, Miss Jennie B. Ross, Mr. and Mrs. Foster and Miss Jennie Foster, Mr. T. D. O'Connor, Mr. M. J. O'Connor, Mr. W. P. Little, Mr. R. V. N. De Neyse and Mr. Morton De Neyse, Mrs. H. L. Sadler and Mr. Ogden Parker, Mr. Stephen D. Horton, Dr. Stephen F. Horton, Mr. Alfred L. Beebe, Mr. Edward Laudy, Mr. F. H. Friese, and Mr. Geo. F. Eisher.

The occasion was a happy one; the more so because science bowed to the ringing of the marriage bells, and art was swayed by the sweet fragrance of orange blossoms. We were assured by our amiable *confrère* that the sympathies of his bride had been enlisted in behalf of our precious art.

We wish them a bright and enjoyable life-image. With this accession of power and orange blossoms to the staff of our neighbor, the *Bulletin*, we must look to our laurels.

"WIDE AWAKE" and "Fast Asleep" are pictures of a jolly baby sent us by our amateur friend Mr. W. S. PERKINS, Colfax, Cal. F. A. lies in his baby carriage with one tiny hand

folded upon his breast, and the other, with the little fingers spread apart, hangs down upon the rug at the right, while his prince-ship, with head over on one side of the pillow, is fast asleep. The gourmand amateur has awakened him apparently, for in the second picture he is W. A. The little hands are boring into his viscera, and with both eyes open tight toward the lens, with mouth open, he is on a full laugh, and wide awake truly. It is a lovely twain.

**TESTIMONIALS** for *Mosaics* come in thick and fast. Here is one from that high source, 423 Broome St., New York:

December 15, 1887.

EDWARD L. WILSON.

DEAR SIR: *Photographic Mosaics* 1888 was all the more welcome by being a little behind time. It seems to me you have excelled yourself this year, in mustering to your aid a grander company of volunteers than you ever secured before "to shout the battle cry" of photography. *Mosaics* is a most valuable book. We all use it so much that we are glad we can possess copies of the author's edition, bound in cloth.

You will doubtless soon be "sold out," and as it was last year so very soon, now there will be "no copies for sale." Truly yours,

W. IRVING ADAMS, Agent.

Scovill Manufacturing Co.

***Mosaics Reprinted.***—We are glad to say to our readers that the alarm about *Mosaics* is over. In less than one week after its publication, we sold our entire edition. The orders from the trade kept pouring in, and we tried, as last year, to buy books enough to fill them from the dealers. It was no go. We could not get any. At once then, we accepted the situation, we set the work up again and printed 2000 additional copies. Of these 1300 are sold and the rest are—awaiting the pleasure of our enterprising fellow craftsmen.

**SPLENDID DOG PICTURES.**—Messrs. STUBER Bros., Louisville, Ky., have augmented the protective force about our sanctum by sending us several cabinets of a noble Newfoundland dog in various positions. A dog in a photograph gallery is as obstreperous, usually, as a cat in a

strange garret, but this time the splenoid fellow has behaved well.

**PRIZE BROMIDE ENLARGEMENTS.**—Mr. W. H. WALMSLEY, 1016 Chestnut St., Philadelphia, has favored us with some prints from the negatives used for his Chicago exhibit of bromide enlargements, and for which he obtained the Eastman prize of \$50. Nothing can be more lovely than they are. One of the landscape subjects is being printed for our "prize-takers' series." It is a gem.

"**LIGHTNING FLASH**" is the name given by Messrs. BUCHANAN, BROMLEY & Co., 1030 Arch St., Philadelphia, to their magnesium compound for night pictures. A circular with directions is supplied free. A copy comes to us accompanied by a print of a splendidly timed drawing-room interior, made in one-tenth of a second (just think of it), and by several cabinet portraits beautifully lighted and timed exactly. One of Mr. Buchanan is the best we have seen of him. Surely here is a great power placed in the hands of the photographer of home groups, animals, interiors, machinery, and dark places.

**NOTES AND NEWS.**—The second exhibition of the Pacific Coast Amateur Photographic Association, was held in San Francisco on the evenings of December 12th and 13th. It was a brilliant success. Our neat card of admission and illustrated invitation came just two days too late to enable us to be present. Our regrets.—The New Orleans Camera Club is holding enjoyable seances this winter. The Tulane University has placed a fine room at the disposal of the club, and with Mr. P. E. CARRIERE as the leading spirit, photography is truly enjoyed in the Crescent City.—The Gundlach Optical Co., Rochester, N. Y., issues a fine series of testimonials to the good qualities of their American lenses.

**ANOTHER IMMENSE CATALOGUE.**—Messrs. MULLETT BROS., Kansas City, Mo., have just issued another splendid catalogue. It is 10 x 12 inches by  $\frac{3}{4}$  inch in size; contains 200 pages; about 1000 wood-cuts, and full price-lists of photo-requirements, mouldings, frames, accessories, and so on for photographers and picture-dealers. It is finely printed. The index is on page 184. The trade will find it of great service.

The Suter lens has been doing some rapid things lately. We expect to embellish our early

February issue with a fine cabinet made with a Suter lens by Mr. G. CRAMER, St. Louis. Mr. Cramer is an enthusiastic admirer of the Suter, and will show us wonders. We also expect a promised essay from Prof. Suter.

IN our early December issue we asked our readers not to forget our old friend GATCHEL when making their orders. In a note thanking us for the remark, he states that his customers seem to have taken the advice before it was given, for his trade in November last was the largest he has ever had in that month. So much for the effect of good advice. Our friend has learned by this that there is more heart in the trade than we all sometimes suppose. Long life and prosperity to him.

**A NOVEL BUSINESS CALENDAR AND STAND.**—A most novel, convenient, and valuable business calendar for 1888 is the Columbia Bicycle Calendar and Stand, just issued by the Pope Manufacturing Co., of Boston, Mass. The calendar proper is in the form of a pad, containing 366 leaves, one for each day in the year, to be torn off daily. The pad rests upon a portable stand, and when placed upon the desk or writing-table the entire surface of the date-leaf is brought directly, and left constantly, before the eye, furnishing date and memoranda, impossible to be overlooked. Upon each slip appear fresh quotations pertaining to cycling from leading publications and prominent writers—a collection which illustrates the popularity and universality of cycling the world over.

**AN IMPORTANT ART ENTERPRISE.**—The Society of Graphic Arts, at Vienna, publish, beginning in January, a chronicle of the graphic arts, which will fill a great want. It will form a complete compendium of art information of every description, such as the technical progress obtained in our day, studies of international or local exhibitions, graphic institutions and ateliers; papers concerning the history of engraving, discoveries and new investigations; all the information, literary, bibliographical, and biographical, necessary to the amateur as well as to the artist, to the historian of art, as well as to the collector.

Conceived in this spirit *Chronicles of the Graphic Arts* will form a valuable complement to the great publications of the society, which are

1. *The Work of the Galleries* (copper-plate engravings and etchings, large size).

2. To *Graphic Arts* (a splendidly illustrated periodical).

The editorship of the *Chronicle* has been entrusted to Mr. RICHARD GRAUL, at Leipsic, Lortzing strasse, 10 I.

The *Chronicle* will appear eight times a year, in January, March, May, July, September, October, November, and December.

When not taken with one of the society publications, the subscription price will be six francs.

A WONDERFUL success has attended Mr. JOHN CARBUTT with his orthochromatic plates. Both he and M. W. H. WALMSLEY have recently sent us prints and lantern slides, showing the magnified sting and poison sac of a bee, the object being to show that with an ordinary dry plate the dark-yellow and blue stains employed together in preparing the specimens utterly precluded the possibility of securing a satisfactory photograph of it, while with the Carbutt orthochromatic plate a perfectly satisfactory result was obtained.

One would scarcely believe that there would be such a difference in photographing anything so very delicate.

THE "Triplex" portrait was the holiday excitement at Mr. Rockwood's studio, 17 Union Square, New York. He met success with it at once. Where is the mamma who would not have a "triplex" of her child rather than one and no choice? We feel quite sure that those who take up and work the "Triplex" intelligently, will find it a great "take."

A SERIES of cute pictures has been sent us by Mr. P. CARRIERE, New Orleans. They are groups of his children prettily posed "at work" both as photographers and as *prestidigitateurs*. The latter are very funny, especially where the junior Carriere astonishes his junior sister by "bringing a cat, and then a dog, from papa's hat." Who would not enthuse over an art that will catch such pictures of children at home?

RAILROAD pictures most interesting and curious have been coming in to us and we want more. Some fine things have been received from Messrs. W. H. JACKSON & Co., Denver; C. E. ORR, Springfield, Ill.; A. B. WARFEL, Cadiz, Ohio; H. H. TURNER, Rochester, N. Y.; B. W. KILBURN, Littleton, N. H., and others. Please inform us what you have.

*Quarter Century* IN ENGLAND. — Now our friends across are finding out what *Quarter*

*Century* is like, and they are just as kind in sending good words concerning it, as our own American friends are. Here are a few brief excerpts from recent letters from noted "lights" in our art:

"*Quarter Century* is grand. I have put it into my son's hands for study, and think it will give him the best possible ground-work for future teaching. I am very much pleased with it."—W. T. WILKINSON, author of *Photo-Engraving on Zinc and Copper*, and other works, Leicester, England.

"It is a thoroughly good operative work. It is capital."—C. T. MALLIN, Southport, England, maker of "50 gulls on the fly."

"I consider it, without doubt, the best work on photography published. You seem to have omitted nothing. Every page is a book."—W. E. WOODBURY, London.

*Quarter Century* AT HOME.—The first edition is gone, and the second is printed and partly distributed. Operators should all have it. Amateurs will enjoy it and profit by it. A noted teacher writes thus:

"I have found much interest in your *Quarter Century*. It is full of information (perhaps too full) for the amateur, and would be a valuable addition to any photographic library." Prof. C. M. DODD, Williams College, Mass.

*Quarter Century* AMONG THE DEALERS.—The following is an example of the good words we get from the dispensers of photographic desirables:

"Of the fifty-two copies received, all but seven are sold, and I expect they will go before the holidays. Enter my order for ten more copies." SAM C. PARTRIDGE, San Francisco.

A GRACEFUL THING TO DO.—One kind patron in Wilmington, Ill., sends us some lovely pictures accompanied by a beautifully inscribed testimonial which reads thus: "An amateur sends to the author these humble efforts as a slight acknowledgment of the pleasure and profit that came of the study of *Quarter Century*."

MR. CHAS. BUTTERWORTH, Wilmington, Ohio, has made a fine portrait of the learned author Hon. A. P. RUSSELL. It is much praised by the local press.

JUST AS WE PROMISED.—The quotation given below from the letter of a subscriber who renews his subscription, proves that the one who improves his work and maintains his price, will "get the trade." "I am glad to report a good

holiday 'run.' I think, beyond a doubt, it pays to keep up with the times. While my opponent (who is a 'good fellow' but a 'leestle' slow) has had to advertise 'special, low rates for the holidays,' I am charging more than usual, and we are 'snowed under with work.'" It is sure to be so.

THE St. Louis *Photographer* sends us an early New Year greeting, which we heartily reciprocate. Our contemporary grows with the growth of our art, is full of push, and continually widens its usefulness. Much success to it for the new year. Look at it.

MR. F. GUTEKUNST, Philadelphia, has removed his photogravure and phototype works to N. E. corner Ninth and Girard Avenue, where, with improved machinery and increased facilities, he will be enabled to produce illustrations in either of the above styles with greater excellence than before. The office is at 712 Arch Street, where Mr. JAS. B. HARBESON, the manager, will be from 11 to 2 every day.

MR. EVAN RANDOLPH, one of the early members of the Photographic Society of Philadelphia died recently. He was a photo enthusiast and had a grand collection of pictures.

*Quarter Century* was a great favorite as a Christmas present during the holidays. Several of the considerate wives of our patrons sent for it to present to their husbands. Some of the methods resorted to for "keeping the thing secret" were as amusing as they were generous and kind. A wife could not do a better thing to increase her husband's wealth than to present him with *Quarter Century*.

MR. SAM C. PARTRIDGE the pushing photographic purveyor of San Francisco, writes under date of December 15th: "Forward me ten copies more of *Quarter Century*, as the ten copies now on the road will not last long." Mr. Partridge has had great success with this book. Have you seen it?

THE BRUSSELS EXPOSITION.—All the applications for space must be in the hands of Messrs. ARMSTRONG, KNAUER & Co., 822 and 824 Broadway, by January 15th. This is soon, for our patrons, but we hope a good representation of American photography will be there. For circular of particulars address as above. A medal and diploma is given to every exhibitor.

At the meeting of the Franklin Institute, Philadelphia, on December 21st, Mr. FRED. E. IVES read a paper on the ether oxygen light, and Mr. W. CURTIS TAYLOR exhibited and commented upon some remarkable negatives.

THE Transferrotype, described on page 19 by Mr. G. HANMER CROUGHTON, opens up lovely possibilities for the utilization of amateur negatives. The effects are very beautiful and the variety is endless.

*The Carbon Process*, (late edition) by Dr. ED. LIESEGANG, Dusseldorf, Germany, has been received. It is in the French language.

MR. J. HANSEN LUNDAGER, Rockhampton, Queensland, has favored us with a series of admirable and interesting views of the famous gold mines near his home, together with a descriptive pamphlet. The views (some of them 14 x 17) are a revelation to us as showing the methods adopted for obtaining, assaying, and refining the precious metal. Mr. Lundager has our thanks. His views were sent by a friend who first carried them through our city to England and then sent them back. As views they are fine.

THE PHILADELPHIA PHOTOGRAPHER IN SCOTLAND.—Mr. G. G. MITCHELL, Secretary of the Edinburgh Photographic Society, writes: "I must take this opportunity of heartily thanking you for the PHILADELPHIA PHOTOGRAPHER, which is a regular and welcome visitor to our council table. Its able conduct, style, and admirable illustrations of our common art, place it among the first-class photographic journals."

"His latest yarn," the picture by Mr. G. M. ELTON, Palmyra, N. Y., which attracted so much attention in his prize exhibit at Chicago, has been engraved and appears as the frontispiece of *Drake's Magazine* for December. It represents an old soldier telling, with fingered emphasis, a yarn to a much older and much amused companion, and is very life-like and well done.

THE AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOTOGRAPHIC TIMES ALMANAC, for 1888. Edited by C. W. CANFIELD. Second year. New York: Scovill Manufacturing Co. 60 cents post-paid, Cloth, \$1.10.

The photographer who does not quickly own this splendid and useful work, neglects his business most unwisely. It is larger than last year

by some fifty pages. The general arrangement is the same. It contains valuable papers, some short, some exhaustive, on almost every topic the photographic enthusiast could wish for, be he amateur or adept. A good review of it would require a half dozen pages of our magazine, for we should want to quote from fifty of the articles.

The articles are very comprehensive in scope, and fully equal in character and treatment to those of last year. The dark-room—its management and lighting, come in for specially frequent consideration. The detective camera also has frequent mention in other articles as to its general use and value. All the departments of work in and out of doors are treated in fine detail. Art comes in for a large and intelligent share, which is one of the most cheerful signs of the times. *More art* is what we all most need. "The Photography of Solar Eclipses," by Prof. Wm. Harkness, of the U. S. Naval Observatory, Washington, is one of the most learned papers, and treats exhaustively the results of several attempts at photographing solar eclipses, and deduces a formula for obtaining the proper timing to secure certain results. This is a most important and practical contribution to the literature of the subject.

How so much can be given for so little money can only be understood when we realize the liberality of the publishers and their wide-awake agent, Mr. W. Irving Adams. Such a work will provide material for catch-up moments for a year to come. Judge further of it by the array of attractions and the list of authors, which we give below.

The contributors are: Prof. Wm. Harkness, Dr. J. M. Eder, W. H. Sherman, A. H. Oakes, R. O. Boissonas, W. M. Ashman, Ellerslie Wallace, T. N. Armstrong, Edward Bierstadt, Rev. G. M. Searle, P. C. Duchochois, R. Spitaler, W. Jerome Harrison, F. G. S., H. P. Robinson, Hon. A. A. Adey, W. J. Stillman, Andrew Pringle, Karl Klauser, J. Gædicke, F. C. Beach, Rev. Clarence E. Woodman, Ph.D., Abram Bogardus, W. W. Starbird, C. C. Vevers, Joseph B. Brown, W. K. Burton, C. E., Dr. E. A. Just, Edward L. Wilson, Ph.D., Herbert L. Aldrich, E. Obernetter, Samuel Wadsworth, J. H. Harvey, Charles E. Willard, W. J. Hickmott, W. J. Baker, W. H. Potter, Henry M. Parkhurst, Rev. W. H. Burbank, Robert S. Redfield, Dr. O. G. Mason, H. McMichael, Ernst Gundlach, John Carbutt, A. Baumgarten, W. H. Walmsley, W. H. Bartholomew, F. Mueller, George E. Francis, M.D., A. S. Murray, F. R. C. Perrin, Victor Schumann, Frank La Manna, Dr. Adolph Steinheil, Robert Barr (Luke Sharp), J. Albert Cole, Ottmar

Jarecki, O. Vollmar, Dr. George L. Sinclair, Charles Wager Hull, George Mason, John E. Dumont, Henry L. Tolman, J. R. Swain, W. H. Metcalf, R. G. N. Bain, Prof. Charles Ehrmann, Joseph S. Rice, W. H. Gardner, Gustav Cramer, E. N. Estabrook, Dr. Julius Schnauss, F. A. Jackson, John Bartlett, H. Lemp, C. E. Van Sothen, U. S. N., Karl Schwier, Ernest Edwards, Lieut. Samuel W. Very, G. Watmough Webster, J. Wells Champney, H. Edwards-Ficken, E. L. Hurd, "A Russian Amateur," Professor Walter Goodnough, James Inglis, Dr. Maurice N. Miller, C. Schindl, Wendell Stanton Howard, W. I. Lincoln Adams.

The illustrations are: A photolithograph, showing an improved new process, by the Photogravure Company of New York.

A photo-copperplate engraving of a pictorial landscape subject, by Obernetter, of Berlin, Germany.

A bromide print of a most artistic subject, by the Eastman Dry-plate and Film Co.

A zinc etching, from an engraving, which is itself as fine as an engraving, by Stevens & Morris.

A photo-chemical engraving of a very attractive subject, by W. H. Bartholomew.

A charming child portrait, by Crosscup & West's improved Ives process.

Three Mosstypes of popular subjects.

Six thousand one hundred and fifty copies (6150) of the annual were printed in two editions last year—its initial issue—and their ready sale justifies the publishers in printing a first edition this year of five thousand copies. This number has already been nearly covered by the wholesale orders which have been sent in.

THE "TRIPLEX."—I never realized what an exceedingly modest man I was until I began to receive letters of thanks and praise from my fellow photographers for the little "Triplex." May I ask you to say in my behalf that while I appreciate the very strong things which have been said to me and offerings of compensation, I have not the time, with the great accumulation of work on my hands, to reply to each pleasant letter that I have received concerning them. It is very evident from the tone of the letters that a large number of the fraternity have been benefited by my suggestions, and that the "Triplex" picture will be a "go." I find my ample reward in the fact that the pictures have been successful, and that my fellow photographers have acknowledged the courtesy. I hope I may be of further use to the craft. Yours very truly, Geo. G. Rockwood.

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

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We mount cabinet size prints for photographers for \$1.00 each, transportation paid by us. E. K. TALCOTT, 216 Northampton St., Boston, Mass.

**FIRST-CLASS Operator and Artist** in ink, water-color, and crayon, also fine retoucher with 12 years experience in the best houses in Boston and European studios, wishes to correspond with some reliable house needing such help. Well acquainted with the German, French, and Spanish languages, and would not object to go West, South, or Mexico. Best of references if desired. Address, ODIN FRITZ, care Partridge, 2832 Washington St., Boston.

MESSRS. GOLDSMITH & MOFFITT,

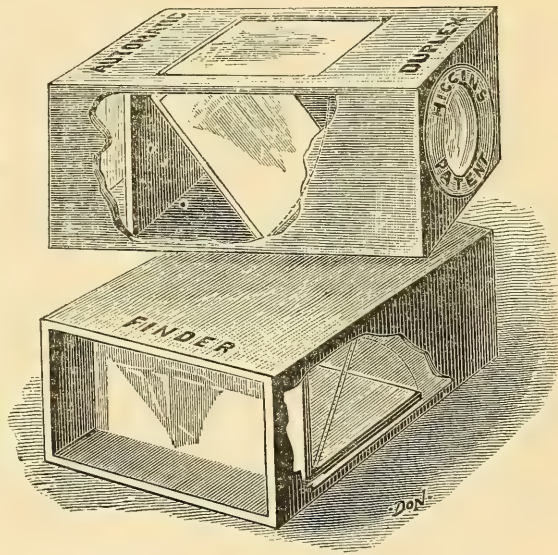
DEAR SIR: The sensitized paper preservative when used in the tin apparatus is a great success. The paper keeps in perfect condition for two or three weeks. Instead of silvering paper every morning, as heretofore, we now silver large quantities at a time, and use it as required, thereby saving great loss by paper spoiling before we were able to print it. You certainly are entitled to the thanks of the fraternity for this valuable discovery. Very truly yours,

J. H. KENT.

**FOR RENT.**—Gallery well furnished with all necessary apparatus, backgrounds, etc. Will rent for \$12.50 per month. Address, BYRON CUMMINGS, Lancaster, Pa.

**FOR SALE.**—Business property, including Photo. Gallery and Residence. Splendid trade. Good prices. I want to quit the business, and sell you \$7000 worth for \$5000. GEO. W. KIRK, Huntington, W. Va.

### DR. HIGGINS'S AUTOMATIC DUPLEX FINDER.



**PRICE, \$2.50.**

For description see the PHILADELPHIA PHOTOGRAPHER, November 5, 1887, or send for circular to

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No. 2 Bond St., N. Y.

### AT COST FOR THIRTY DAYS.

Having purchased the manufacturing business of Gilbert's Automatic Retoucher, we offer, in order to facilitate its introduction, to sell one hundred at cost, \$4.00 each; regular price \$7.00. Offer good for 30 days. Address, AUTOMATIC RETOUCHER Co., Jamestown, N. Y.

Now in stock, the Seed Plates, *quick*, Sensitometer No. 24.  
GEORGE MURPHY,  
2 Bond Street, New York.

TO PHOTOGRAPHIC STOCK OR  
DRY PLATE HOUSES.

As I have had 12 years experience throughout the Photographic business, I wish to travel for a first-class house, either as Salesman or Dry Plate Demonstrator; know I could make it pay for any first-class house engaging me. I am perfectly well acquainted with the German, French, and Spanish languages, and think I could start a good South American trade. Address, ODIN FRITZ, care Partridge, 2832 Washington St., Boston.

WANTED.—An Air Brush in good order. Address with lowest price.

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**Two-Horse Power Engine. \$75.**

WITH STEEL BOILER, \$150.

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Automatic Boiler Feed. Automatic Pop Safety Valve, Steel Boiler. Cost of running guaranteed not to exceed three cents per hour. Nothing equal to it ever before offered for the price. Larger sizes equally low. Send for free descriptive circular.  
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Flexible Foreground Negatives are no longer manufactured. My success in *crayon* and *pastel* portraiture has necessitated my discontinuance of photography, and being engaged in the study of art from the life, at the Art Students' League of New York, for the winter, I will receive a limited number of orders for portraits at reasonable prices. Work guaranteed and finished as quickly as possible. Address

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N. B.—If a picture furnished by me is not satisfactory to your patrons, send it back and I will endeavor to correct it without extra charge.

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1 25 inch Entrekin Burnisher . . .	\$45.00
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1 ½ size Lantern Objective, no name, good condition . . . . .	5.00
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1 Pair (matched) No. 0 EurySCOPE Stereo Lenses . . . . .	40.00
1 Pair (matched) Ross Wide Angle Stereo Lenses . . . . .	25.00
1 No. 2 Darlot Rapid Hemispherical .	20.00
1 E. A. Single Combination Lens, Rack and Pinion Movement . . . . .	5.50
1 Ross ½ size Portrait Lens, Rack and Pinion, Central Stops . . . . .	30.00
1 14x17 Morrison Wide Angle Instantaneous Lens and Drop Shutter .	35.00
1 Spencer Head Rest, Nickel-plated Rods . . . . .	7.00

The above bargains are offered for sale for cash and are all guaranteed to be in good working condition or no sale. ROBERTS & FELLOWS, 1125 Chestnut St., Philadelphia, Pa.

FOR SALE.—A first-class photograph gallery in the city of Boston. Location for business unsurpassed. Price reasonable. For full particulars address Lockbox 66,982

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GET Wilson's *Quarter Century in Photography*. \$4.00.

PHOTOGRAPHERS.—Send for circulars and lists. New ones continually published. GEO. MURPHY, 2 Bond St., New York.

THE PLATINOTYPE for Amateurs; simple to work, and the results artistic and beautiful. Send ten cents for sample landscape and book of instructions. WILLIS & CLEMENTS,

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TRY the new Sulphite Soda. Cryst. GEO. MURPHY, 2 Bond St., New York.

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Price, per box, 75 cents.

Photographers desiring first-class crayon and pastel work, by a skilled graduate of the Cooper Union Art Department, will please address

Miss A. C. Hogg,  
245 S. 9th St., Brooklyn, N. Y.

Will sell all of Usener Lenses at cost. GEO. MURPHY, 2 Bond Street, New York.

## "THE TAMING OF THE SHREW" SOUVENIR.

A magnificent souvenir with the photographures illustrative of Shakespeare's *Taming of the Shrew* as performed in this city by the Daly Company, is now ready.

It is a splendid study and should be owned and applied to by every art aspirant for help. The following is the list of illustrations, printed in color.

1. Frontispiece in blue, with the title and a portrait of Miss Ada Rehan, "the Shrew."
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3. Miss Rehan as Katherine—the Shrew.
4. Mr. John Drew as Petruchio.
5. Sly, the tinker, metamorphosized into a lord.
6. Katherine's wedding day.
7. The real Vincentio and the mock Vincentio.
8. The Shrew tamed.
9. Lucentio's bouquet.
10. The final tableaux.

The first five are Portraits by N. Sarony, the rest are by Electric Light taken from the Stage direct, and are very fine.

Mailed in a tasteful box, post-paid for \$2.20. Without postage the price is \$2.00.

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TRY VAN SICKLE—also the New Compound Shutter. Can be made to fit any front. GEO. MURPHY, 2 Bond St., New York.

THE PLATINOTYPE for Photographers, Solar Printers, and all Copyists. Platinotypes are permanent, and a license to work the process costs very little. Send ten cents for sample portrait and book of instructions.

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This cut illustrates the apparatus that will do the work successfully.

No more anxiety in regard to the weather or in keeping your paper until the sun shines, or until it can be used. It will save the average photographer five times what it costs to use it, saying nothing of the convenience of having sensitized paper always ready for use.

It is as valuable in Winter as in Summer, and will pay for itself five times over in the saving of time, labor, and gold, as where paper is kept two or three days it tones much easier than without it, and requires less gold.

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We have this day shipped to our warerooms  
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THE HUB BRAND DRY PLATES

to meet immediate demands. More shall follow daily. Remember that we shall deal liberally with all photographers who are willing to convince themselves of the quality of these plates. They have our guarantee. THE BLAIR CAMERA Co., Boston.

FOR SALE.—A splendid No. 9 Voigtlander portrait lens  $6\frac{1}{2}$  inch diameter 20 inch focus. Regular price \$435.00, for \$250.00. This lens belongs to Mr. Fox, and we guarantee it to be a superior instrument. J. C. SOMERVILLE,  
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FOR SALE.—A first-class photo business at a bargain. Reason for selling, other business requires my whole attention. Price, \$800. This is a real bargain for the lucky party who secures it. Address, CHAS. AHLSTROM,  
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GRAY'S PERISCOPE.—This new photographic lens is being very favorably received both in this and the European markets. The *Periscope* is a rectilinear combination, and is most useful for views and architectural subjects that require microscopic definition over a largely extended field. Owing to its simplified construction, the *Periscope* is sold for less than half the price of any other lens doing the same quality of work. Send for list.

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## TO OUR PATRONS.

ST. LOUIS, March 25, 1887.

GENTLEMEN: Being informed of an increased discount offered by one of our competitors, we take the liberty to inform our patrons that we cannot, in justice to ourselves and to those who have honored us so far with their patronage, make such an offer. Having been in the business now for over four years, we have succeeded in making a plate which we can say with confidence has given entire satisfaction, and it would be an impossibility to lower the present prices without lowering also the standard.

We are assured that our friends will not abandon the use of our plate, even should it cost them a trifle more. Very respectfully,

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THE well-known and popular annual, *Photographic Mosaics*, is now ready.

Secure copies simultaneously with your competitors.

The fact that the circulation of *Mosaics* has increased yearly for *twenty-three years*, gives a good augury of a large sale for the current edition, and that its former purchasers will keep up their sets of the old favorite, no matter what comes up to compete with it.

Last year my orders were for nearly 1000 copies more than I printed. In April scarce a copy was to be had; but the orders continued. I canvassed the dealers to buy back some of the copies from the trade. Below are some of the answers I received.

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SWEET, WALLACH & Co.

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SCOVILL MFG. Co.

"We have spared you all we can."

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*And I have other similar answers.*

If any dealer has overcopies I would like a chance to purchase them, as they are wanted. Already 2600 copies for 1888 are sold. Price, cloth bound (Author's edition), \$1.00; paper, 50 cents. Discount, 25 per cent.

EDWARD L. WILSON,

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Send for Bargain List and any requirements needed. GEO. MURPHY, 2 Bond St., New York. Eagle Stock House.

RAILROAD PICTURES WANTED.—Our success in securing cyclone pictures was so great that one of our leading magazines desires us to procure photographs of all objects of detailed interest pertaining to the railroad system of our great country, such as fine views, tunnels, viaducts, bridges, curves, ascents, switches, snow-sheds, smash-ups, collisions, break-downs, snow-blockades—in fact, every freak and feature apper-

taining to a railroad or part of a one. Parties having such will oblige us by sending a list with prices, or lots on selection. Due credit will be given in every case where prints are used. Please be prompt.

#### PHOTOGRAPHIC MASKS.

The Rockwood Triplex Portrait Mask. One Dozen mailed on receipt of 50 cents. Also, manufacturer of all kinds of picture mats.

H. STENGEL,

710 Broadway, N. Y.

#### TO PHOTOGRAPHIC MERCHANTS.

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GENTLEMEN: We have now opened a *New York Depot* for the benefit of our Eastern patrons. From this depot orders will be delivered to any New York Freight, Express, or Steamboat office. Address M. A. SEED DRY PLATE Co., No. 2 Bond St., New York. A. R. HUISKAMP, Manager.

*Quarter Century.*—T. C. HEPPWORTH, Esq., author of the very acceptable "Notes from London" which appear in our pages and editor of the *London Camera*, writes the following concerning Wilson's *Photographics*:

A handsome book of nearly 400 pages, from the pen of one who is already known to the readers of the *CAMERA*. Dr. Edward L. Wilson, who tells us month by month what is going on among the photographers of America, has produced in this volume one of the best and most original works upon photographic art which we have ever seen. It is constructed upon a somewhat new plan. The body of the work is printed in large type, which the reader is recommended to master before attacking the copious notes in smaller type which are printed beneath. The large type words are Dr. Wilson's, and the notes are gathered from nearly two hundred authorities, with the names and initials appended to each. The plan is a good one, and will be appreciated by the practical worker. Dr. Wilson has the gift of writing what would be very dry matter in other hands in a fresh and interesting manner, adorned frequently with touches of humor which give his work much charm. His extended experience in all branches of photography cause him to represent a good authority upon the art, and the beginner, as well as the advanced student, cannot be in better hands as a guide. With regard to the notes, which, by the way, are illustrated—and well illustrated, like the rest of the book—they are evidently the outcome of most diligent research. One is often apt to regret that the little recipes, experiences, and dodges which form brief paragraphs in photographic literature should be too often forgotten in the limbo of back volumes. Dr. Wilson has preserved such items for us in the notes to his "Photographics," and for this reason alone the volume should find a place in every photographer's library.

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*No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.*

By a young man as assistant operator and general workman. Has had practical experience in several galleries. Address, Box 122, Stanford, Conn.

Situation wanted as first-class operator and retoucher. New England preferred. Address, E. R. SHERMAN, Putnam, Conn.

By a first-class negative retoucher, German, can assist in operating. Address, Mr. I. H. Chevalier, 311 E. 61st St., New York City.

In first-class gallery, as printer and toner; can assist in operating, and retouch a little, am strictly temperate and willing to work. Wages very moderate. Address, F. Robinson, Macomb, Ill.

As assistant printer in some good gallery. Wages no object. Can give good recommendation. Address, J. W. Bebout, Oberlin, Ohio.

A permanent position or to buy a gallery (cheap), by an experienced operator and reception-room man, has also practical knowledge of all branches. Address, E. J. 93 Jersey St., Cleveland, Ohio.

As operator or dark-room man; will be open to engagements after March 1st. Position must be a steady one. Address, Photographer, 31 Smed St., Providence, R. I.

As operator or operator and retoucher, can furnish samples and can give first-class references; have been for years with some of the leading galleries in Chicago and Detroit. Have had experience in the bromide business, etc. Address, W. J. Chambers, Lansing, Mich.

As operator, by December 1st, in some Southern State, in good gallery. Salary \$20 per week. Can make bromide prints, finish in crayon, water-color, and ink, and retouch negatives. Address, H. Manderfeld, Waseca, Minn.

By a lady in a gallery, good knowledge of reception-room duties. New York or Brooklyn preferred. Best of references. Address, H. F. Macdonald, care Lloyd, 44 Third St., Troy, N. Y.



<p>THE LARGEST Photo Engraving ESTABLISHMENT IN THE WORLD</p>	<p>FIFTY-FIVE YEARS PRACTICAL EXPERIENCE</p> <p><b>MOSS ENGRAVING CO.</b></p> <p>535 PEARL ST. COR. ELM. NEW YORK</p> <p>MOSS' NEW PROCESS Superior to Any Other Method</p>	<p>ILLUSTRATIONS OF Every Description For Books, Magazines, Newspapers, Catalogues, CIRCULARS, &amp;c. IN THE Highest Style of the Art</p>
<p>SEND GREEN STAMP FOR 24 PAGE CIRCULAR - SEND PHOTOGRAPH, DRAWING OR PRINT FOR ESTIMATE.</p>		

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**GELATINO-ALBUMEN "A" PLATES**, Sensitometer 12 to 14, for Transparencies, on thin Crystal Glass for Lantern Slides, and selected plain and fine Ground Glass for large Transparencies.

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Carbutt's Multum in Parvo Dry Plate Lantern,

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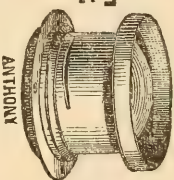
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ANTHONY'S Patent Perfect PLATE HOLDERS  
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SINGLE COMBINATION, RAPID,  
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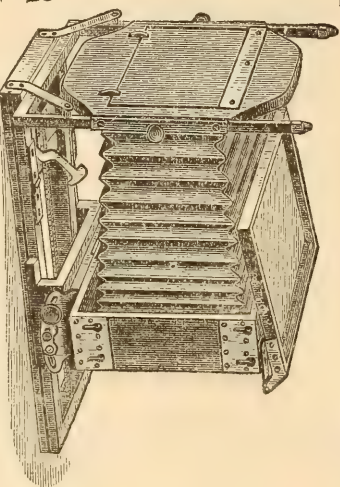
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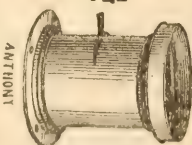
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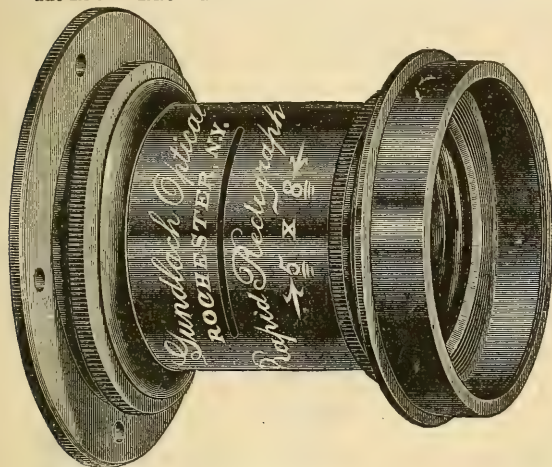
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4	8 x 10	6 1/2 x 8 1/2	1 3/4	11	50 00
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6	11 x 14	10 x 12	2 1/4	15 1/2	76 00
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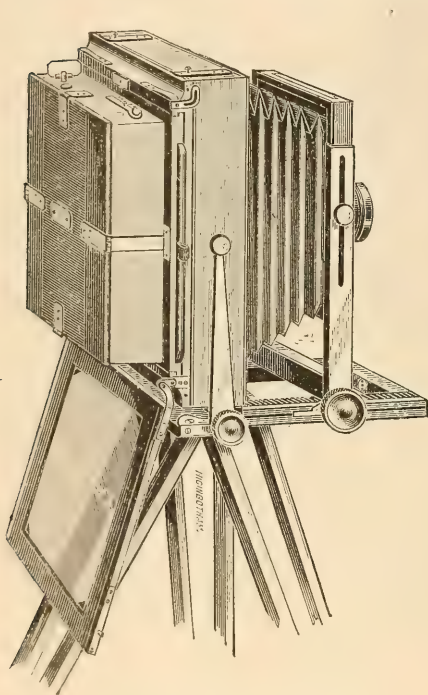
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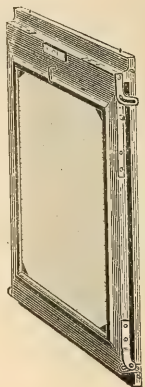
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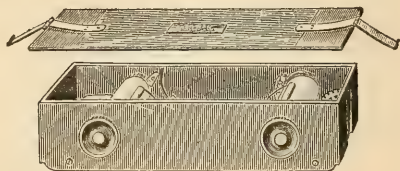
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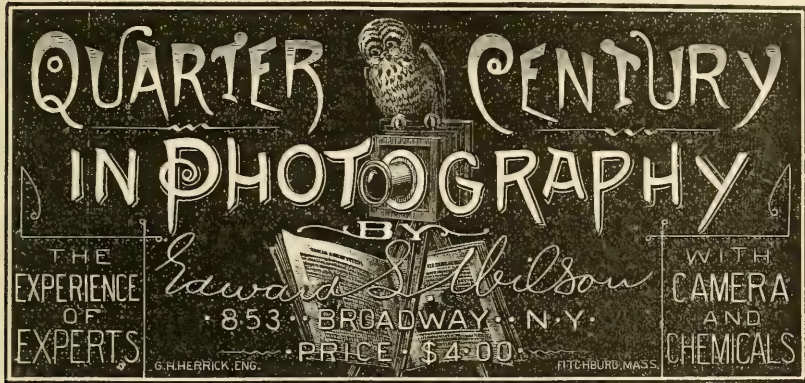
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### THOUGHTS SUGGESTED BY "WILSON'S QUARTER CENTURY IN PHOTOGRAPHY."

BY E. K. HOUGH,  
Artist and Photographer,

in the the *Photographic Times*, November 25th, 1887.

I HAVE been much interested lately in reading *Quarter Century*, and feel inclined to make a few comments. The book is before me. I remember well the impression it first gave me. I thought, "What a beautiful volume! Nice enough for any library. The binding is elegant in its simplicity, with its beautiful lettering in pure gold, and nothing flashy. If the same good taste has controlled thought, it must be well executed. But what a large book! Can we expect good sense, and live thought, through half a thousand pages? Or is it, like too many photo books, a few meagre scraps of useful information, padded with bulky history, telling what nobody cares to know, and elaborate cautions to avoid what nobody ever thought of doing?"

Mr. Wilson is always saying, "boil down," "concentrate." Hasn't he "reversed on us" this time and "amplified?"

We'll read the preface; that always gives some clue to the author's intention.

Well, the preface is short, pithy, and spirited, quite a biography—the spirit of a lifetime in a nutshell.

Then the list of authorities from A to Z seems enough to start a clycopædia. But, running it over, we notice some of the most valued names that photography has pro-

duced. Men who have for years given the best results of their thought and labor for common good. Generous, noble men, whose names are guarantee for a feast of good things, and the list of "illustrations" confirms it. Three hundred and eighty-six; one for almost every page in the book; what a wealth!

But this is the age of illustration, they say. Never before were pictures used so freely and generously as now, on every subject, by every class, in every kind of business. But a few years ago—within the lifetime of many yet living—the revenues of an empire could not have produced pictures so perfect and abundant as those now thrown about as carelessly as forest leaves in autumn.

And our art of photography is largely the exciting and producing cause. So it is but "rendering unto Caesar" his own, when books on photography are liberally illustrated; surely, by the light that pictures give we can see better how to make them.

As we run the book through, we notice the good paper, the clear type, the bright pictures, the careful division of subjects, the running commentary of quoted authorities, all methodically arranged like a well-kept garden, each variety in its own bed, and all carefully weeded that no space be wasted by useless product.

Surely, we think, this book must be of value to every one interested in photography. Let us begin to read it systematically:

Chapter I.—The History of Photography.  
Only four pages. No “amplification” of that subject.

Chapter II.—The Theory of Photography.

Less than half a dozen pages.

Chapter III.—Light.

Less than four pages.

Chapter IV.—The Camera.

Only two pages.

Bless me! What is the man thinking of? Concentration! Boiling down! Why, this is hydraulic compression; this is putting the ocean into a gallon jug; this putting photography entire into a capsule that one can swallow like a quinine pill!

If he is going on like this, what on earth is the book made of? But hold on.

Chapter V, about lenses, has over thirty pages, profusely illustrated. That is right; that is putting the information where it will do most good. For the ignorance of photographers about their lenses is simply incredible.

They don't know how or why lenses are made as they are, nor the differences between them, as portrait, rectilinear, wide-angle, etc. There are scores who could not even give an intelligent explanation of why the image is formed upside down. And yet the lens is the most vital part of their outfit, the part on which their very life (business life) depends, as much as the soldier on his rifle, the musician on his piano, the machinist on his engine.

And although now probably all of these know more about their respective instruments than the average photographer about his lenses. Yet, by studying this chapter, the operator can come to understand the construction and working power of his lenses so thoroughly that he will not have to evade an answer to conceal his ignorance when questioned regarding them. Besides, he will increase his power in using them.

The next chapter is on diaphragms, and ten pages tell a great deal about the use and abuse of those little adjuncts to the lens, and how many a picture has been spoiled by not knowing how and when to use them. It is all useful to the practical worker, and full of ingenious devices clearly explained.

Then we come to a chapter on the construction of the glass house, the sky-light, the operating-room.

Thirty pages crowded with elaborate illustrations, making clear the various forms and methods; so various, that the operator who could not find here some plan to suit, would be hard to please; and any photographer intending to build newly, or reconstruct his old light-room, would, doubtless, save many times the cost of this book by carefully reading this chapter before he began, besides being better satisfied when done.

The succeeding chapter, “Under the Sky-light,” is full of good ideas fully illustrated through thirty-six pages; and the photographer must be far advanced indeed who cannot get many new and useful ideas from it; while to the new beginner, or the partially experienced, it is invaluable.

The next chapter, on “The Application of Art Principles,” brings us to “the very pulse of the machine,” for all the rest counts for nothing without this. The carefully constructed skylight, the beautiful camera, the perfect lens, the complete machinery of curtains, screens, reflectors, backgrounds, and “shadow chambers,” are all made for the sole purpose of facilitating the application of art principles to portraiture.

To construct them and not apply art principles in using them, is to misuse and misapply them, as much as to use the carefully constructed rifle of the soldier for a crowbar; or the beautiful piano of the musician for a manger; or to keep the wonderful machinery of a perfect locomotive always ready, on the track, blowing off steam, but never going anywhere—useless activity. So, making pictures with skylight, camera, and accessories, without the application of art principles, is useless activity, and the more active the more useless, *i. e.*, the greater waste of noble possibilities.

This chapter on Art is as full of good ideas as an egg is of meat, all given upon the highest authority and backed by the strongest reasons. There is one sentence, that, taken as a text, might be elaborated into a volume by itself, and not exhaust the subject. It is this: “The two great main considerations which should occupy the

mind of every photographer are these: *What is the best view he can take of his sitter, and what effect of light and shade will be most becoming to the sitter's countenance? On these two considerations the success of every portrait entirely depends.*"

Acting upon and carrying out these "two considerations" will always bring into play all the photographer's natural ability and acquired knowledge, however great an "artist" he may be.

As the writer says, that sentence "is worthy of being printed in letters of gold and hung where every operator in the land must see it daily."

Art principles applied to indoor and outdoor work are explained, illustrated, and enforced through nearly one hundred of the richest pages in the book; full of suggestion, animation, encouragement, and vital truth. No photographer can read these pages and not straighten up with new resolve to do better work on these lines, at any cost of thought and trouble. They are full of inspiration, and stimulate to new endeavor like mountain air where every step upward stirs the blood and gives new vigor for climbing higher.

Having awakened this desire to do the best work possible, it continues through the last half of the book—over two hundred and fifty pages—to explain the mysteries of the chemicals and negative making, printing, etc., with short explanations of all the new processes, including photo-engraving and the new "color sense" in negatives.

But for the great majority of portrait and view photographers in everyday work, the most interesting and immediately useful section is that on "dry-plate negatives." Nearly a hundred pages, going into all the mysteries and manifold advantages of that wonder in photographic progress, the gelatine dry-plate.

There is much to learn. New chemicals, new processes, new possibilities; new ways of developing, strengthening, reducing, preserving, all explained here, and made as easy as the old ways and far more convenient.

What a treasury of photographic knowledge! How plain, and clear, and easy the path of the new beginner is now, compared to the barren and rugged ways that we had to stumble over in those earlier years; almost without guide or compass we plodded on, often deceived by false directions, misled, mistaken, sometimes swindled, often paying, in our eagerness for all that could be learned, many times the cost of this volume for less valuable information than can be found in any one of these five hundred pages.

We have all heard the old story of the enterprising Western artist who came East and paid \$500 for learning that a drop of nitric acid would keep his ambrotype bath from fogging; and who, immediately on returning home, issued circulars to his neighboring brethren, and sold the secret to ten of them for \$100 each, and all were satisfied.

If all the valuable information in this book regarding dry-plates was held at that rate, the knowledge of photography would be confined to millionaires. But here we have a beautiful book, with the concentrated essence of all that has been discovered or invented in photography for twenty-five years, for less than the price of a dozen cabinets.

Any ordinary photographer will have made and saved more than the cost of the book before he can read it through, by the knowledge he will acquire at the very beginning.

How any one can hesitate to avail himself of so much valuable information at so little cost, passes comprehension. No wonder they are selling rapidly.

This volume and *Photographics* will be the photographer's standard library; his books of ready reference, his "Inquire-within-for-any-thing-you-want-to-know," his compendium of universal knowledge in photography, and it will be a long time before the progress of the art will make another such book necessary.

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For twenty years it has been my personal Art Text-book. It is invaluable, and I give it the highest commendation.

## A NOTED ARTIST'S OPINION OF BURNET'S ESSAYS ON ART.

To W. I. LINCOLN ADAMS,

DEAR SIR: The "Practical Essays on Art" form the safest guide to all students of pictorial arrangement and composition. It is not a book to be placed on the library shelves to be consulted from time to time, but rather one to be studied daily until all the principles it advances have become a part of one's definite knowledge. Read, re-read, analyze, apply, and then return again to this masterly compendium. One's originality is rarely of value unless based on such a sub-structure of principles as are so ably explained. I would place this in the hands of every amateur and professional artist and photographer in the country, if I could. I hope, since that is impossible, that all students will save their pennies until they can own the book, and thereafter truly own it by becoming thoroughly familiar with its contents. Delight in possession of this sort no money can express. With best wishes for the success of this *revival*, I remain,

Respectfully yours,

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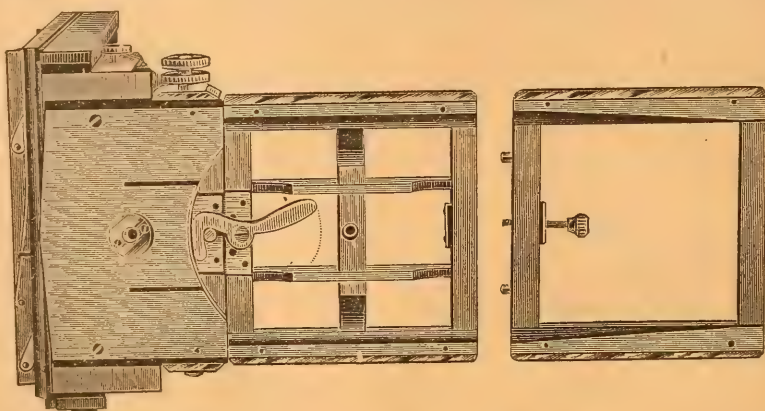
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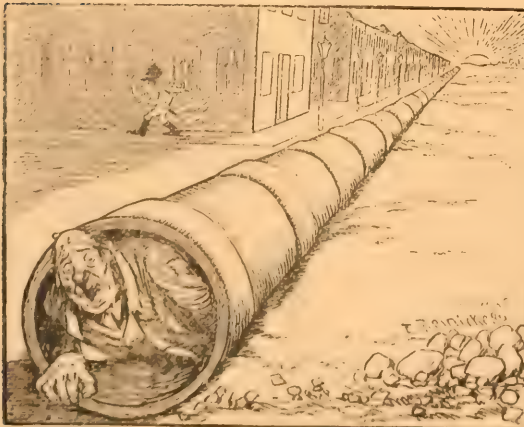
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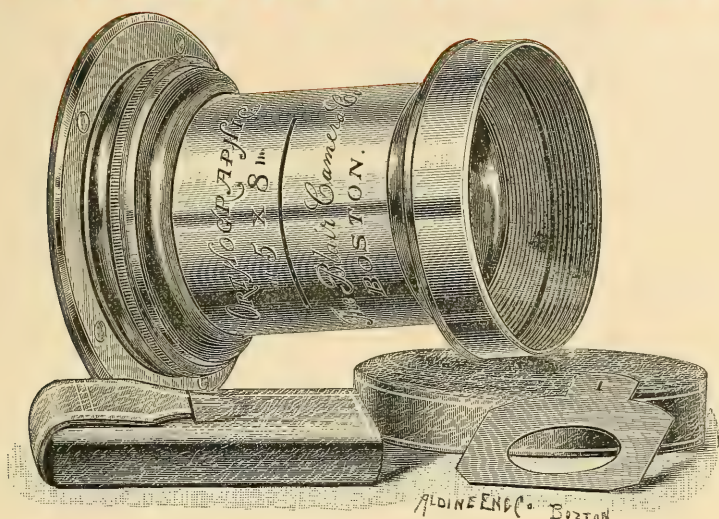
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These Lenses are made expressly for us by a maker whose fame for his unequalled Photographic Lenses is known not only in Europe but in this Country, where they are pronounced unsurpassed by any. Every Lens has both the guarantee of the maker and ourselves. They are absolutely aplanatic, can be focussed sharp to the extreme edge of the field, and are extremely rapid in action, making them very desirable for instantaneous work. They combine all the valuable qualities desirable in a Portrait or Landscape Lens.

The diaphragms are made and numbered in accordance with the recommendations of the Photographic Society of Great Britain, each number being double that of the preceding one, and requiring twice the exposure.

## PRICES.

No.	Size of Plate.	Size of Portrait	Dia. of Lenses	Back Focus.	Equiv. Focus	Price.
1	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$		$\frac{7}{8}$ in.	4 $\frac{3}{4}$ in.	5 in.	\$15.00
2	4 x 5	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$	1 " "	5 $\frac{7}{8}$ " "	6 $\frac{1}{4}$ " "	20.00
3	5 x 8	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$	1 $\frac{1}{4}$ " "	7 $\frac{1}{2}$ " "	8 " "	30.00
4	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	5 x 7	1 $\frac{1}{2}$ " "	9 $\frac{1}{4}$ " "	10 " "	35.00
5	8 x 10	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	1 $\frac{3}{4}$ " "	11 " "	12 " "	45.00
6	10 x 12	8 x 10	2 " "	13 $\frac{1}{8}$ " "	14 $\frac{1}{4}$ " "	60.00
7	11 x 14	10 x 12	2 $\frac{1}{4}$ " "	15 $\frac{1}{4}$ " "	16 $\frac{1}{2}$ " "	70.00
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When the party is known to us we will send any size on ten days trial, providing express charges and cost for any damages will be paid.

Remember we want no one to buy the "ORTHOGRAPHIC LENSES" until perfectly satisfied of their good qualities.

FOR SALE BY PROGRESSIVE DEALERS.

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—EXTREMELY RAPID.—

To give Photographers an opportunity to test the merits of these plates, we will allow until further notice, a discount of 20 per cent.



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These plates are warranted to be uniform in rapidity, having great latitude in development; working clear, fine and delicate in the shadows. With proper lighting and care the most exquisite effects are obtainable

WITH ANY GOOD DEVELOPER.

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3¼ x 4¼	- - - -	45 cents	5 x 8	- - - -	\$1.25
4 x 5	- - - -	65 "	6½ x 8½	- - - -	1.65
4¼ x 5½	- - - -	75 "	8 x 10	- - - -	2.40
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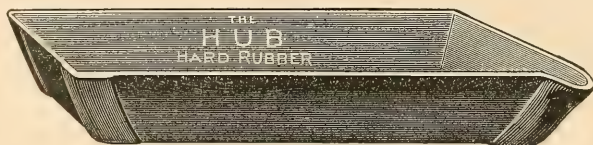
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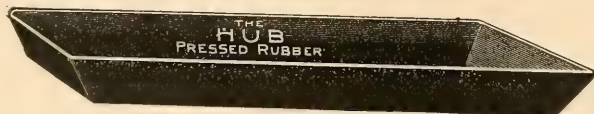
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The "HUB" Hard Rubber Developing Trays are made of the best quality of hard rubber, are deeper (as will be seen by measurements) than the ordinary shallow Rubber Tray, and with bound corners and a lip for pouring.

They are a superior article, and should be seen by every photographer.



Size, $4\frac{1}{4}$ x $5\frac{1}{2}$ .	For Plates, $3\frac{1}{4}$ x $4\frac{1}{4}$ , and 4 x 5.	$1\frac{1}{2}$ in. deep, \$0.66
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" $5\frac{1}{2}$ x $8\frac{1}{2}$ .	" 5 x 8.	$1\frac{5}{8}$ " 1.05
" 7 x 9.	" $6\frac{1}{2}$ x $8\frac{1}{2}$ .	$1\frac{3}{4}$ " 1.15
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## "Hub Pressed Rubber Trays"

(Glossy) without ridges in the bottom to waste Developer.

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" 7 x 9.	" $6\frac{1}{2}$ x $8\frac{1}{2}$ .	1 " .65
" $8\frac{1}{2}$ x $10\frac{1}{2}$ .	" 8 x 10.	$1\frac{1}{8}$ " .98
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Large experience, extensive factories, the very best machinery, and a large corps of trained operatives, combine to give us facilities for manufacturing that are unequalled, and we carry a large stock of goods which embrace every variety of style and color, and which in quality of materials and workmanship are unmatched.

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**EXTRA-BRILLIANT NEW ROSE.**

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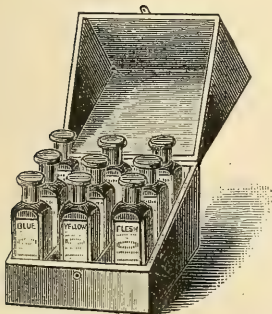
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Everything required for Drawing, Painting, Etching, Modeling, etc.

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Send for Catalogue.

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HAVING seen a circular issued to promote the sale of a particular *brand* of Albumen Paper, in which occurs the singular misstatement that any other *water-mark* than B. F. K., Rives, "signifies nothing," we have thought it worth while to state exactly what the water-mark N. P. A. does signify.

Being desirous of getting up a quality of paper which could *be depended upon* as being as nearly uniform, and as excellent as in the nature of things could be obtained, we asked the President of the National Photographic Association what we should call it. He replied call it N. P. A. We wrote to B. F. K., at Rives, to make us their first quality of paper with this water-mark in quantities of a thousand reams. The interpretation they put upon the letters was "New Paper Anthony." They agreed to do so. We instructed that if by any mistake such a lot of paper proved in any respect *inferior they must cut it up and sell it for writing paper*, but in no case to send it to our albumenizers. We selected the albumenizing company that had the reputation of being the best in Europe, and instructed them that if any N. P. A. paper should by any accident come to them that should appear to be anywise *inferior, they should not albumenize it*, but send it back to B. F. K. to be cut up for writing paper, otherwise we should hold them responsible for damages. When the paper and albumenizers were thus secured all right, they were to cull out any that had been spotted in the albumenizing to be sold for second quality at less price.

The water-mark N. P. A. therefore "*signifies*" all of the above facts, and being a *water-mark*, and *not a mere brand*, it cannot be counterfeited, because it can only be put in when the paper is made, and the *brand* that is on the *same paper* is registered, so that to copy it renders the offender liable to heavy damages.

EXTRA-BRILLIANT  
N.P.A.  
DRESDEN.

*Brands alone* signify nothing, for we know of several instances where parties keep on hand an assortment of stamps to put on paper that comes to them unstamped, so that a customer can be accommodated in a few minutes with paper that is "branded while he waits."

B. F. K. never like to let any paper go out with *their* water-mark unless it is a good article. If it will merely "pass muster" they cut off the edge that has *their* water-mark in, and sell this paper at a less price to some albumenizers who send it to dealers in this country and elsewhere who put on it such brands as please them.

The *brand* therefore *signifies nothing* on whatever paper it may be stamped, and *whether registered or not*.

The only thing that *does signify anything* is the water-mark N. P. A.

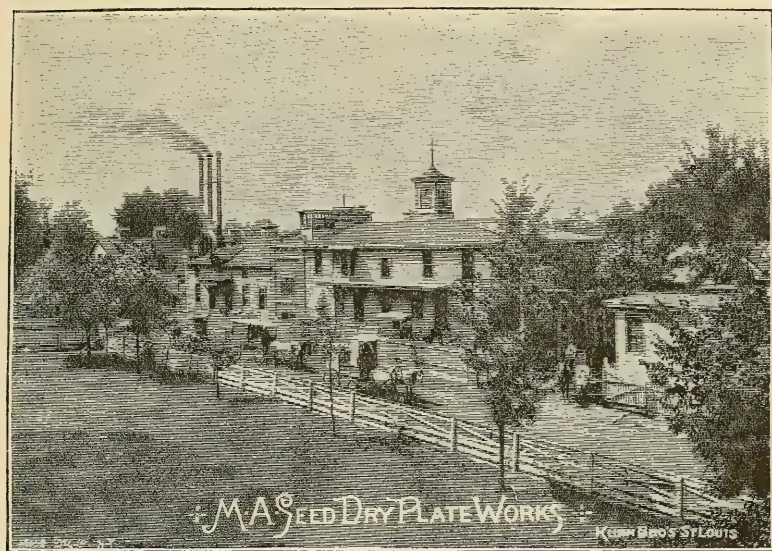
The testimonials to the excellence of this paper given by the most eminent photographers have been given not merely after *trial*, but after *continuous use*.

E. & H. T. ANTHONY & CO.

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ORDER THROUGH YOUR DEALER.  
**Extreme Rapidity.**

Unimpaired Quality.



Wet Plate Effects in Printing.

We have now succeeded in making a plate of a *higher degree of sensitiveness* than ever before, without sacrificing any of the fine qualities for which our plates are so justly famous.

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These plates will be numbered 24 and 25, according to their degree of rapidity.

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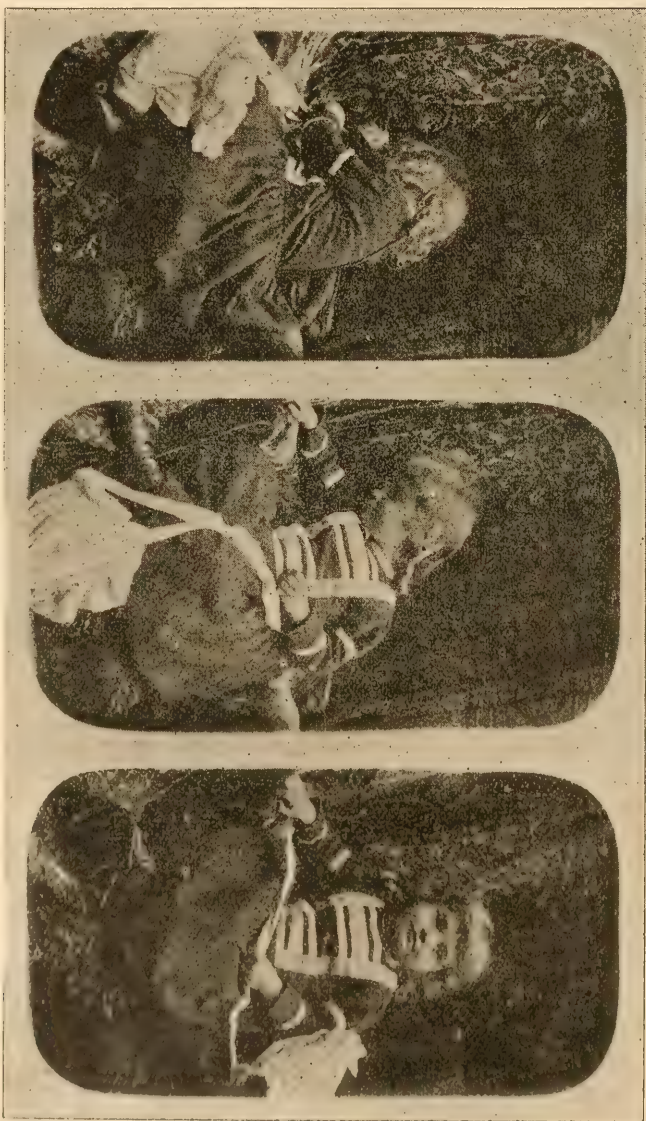
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Incorrigible.

Hopeful.

Happy.

TRADE MARK.

I will send printed instructions to any brother Photographer and samples at 50 cents each. I would recommend that four styles be purchased.

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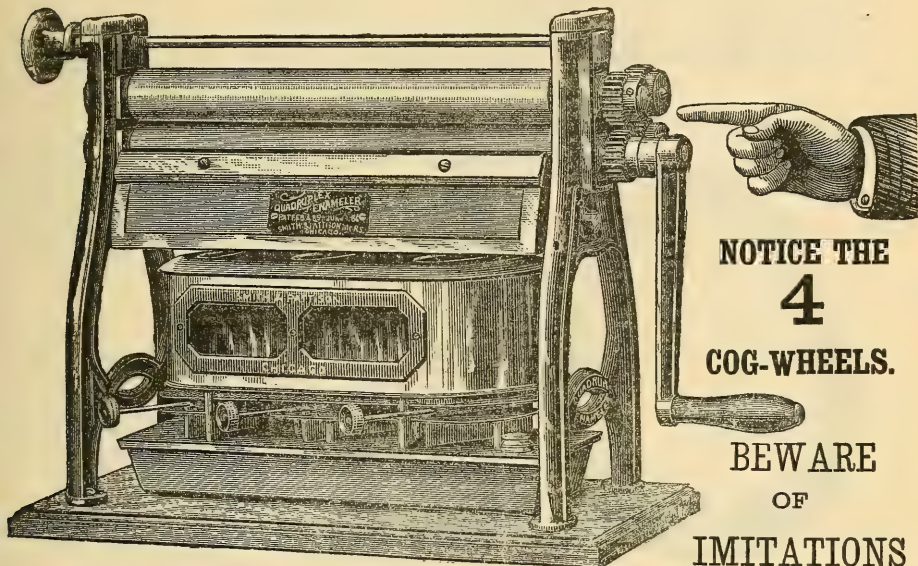
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THE FIRST TO INTRODUCE THE INSTANTANEOUS PROCESS.

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covers this want, and gives *three different poses* on one Cabinet Card—virtually securing *three dozen* pictures. These portraits are not made at any other establishment in New York, and are copyrighted. I get \$8.00 per dozen; \$12.00 for two dozen; or, one dozen Cabinets and one dozen "**TRIPLEX**" for \$10.00.

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**4**  
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OF  
IMITATIONS

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# THE QUADRUPLIX ENAMELER.

A GREAT IMPROVEMENT OVER ALL DUPLEX ROTARY MACHINES  
HERETOFORE MADE.

**IMPROVEMENT No. 1** consists of a new device for regulating the pressure on the cards by means of one *hand screw* instead of two as heretofore used, making the pressure *uniform* and *positive* the whole length of the roll, while with all "DUPLEX" machines it takes a great deal of *time* and *care* to maintain a *uniform pressure*.

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**IMPROVEMENT No. 3** covers the general construction of the machine. It is *new in design*, and more perfect *mechanically* than any of the "Duplex" machines, one of the most noticeable improvements being in the roller bearings.

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The finish given to photographs with this machine is superior in brilliancy to many "enameled" pictures we have seen, and much more durable than enamel. NO LUBRICATOR USED. NO SCRATCHES POSSIBLE. NO SPOILING OF PRINTS.

**THE BEST. TAKE NO OTHER.**

**PRICES.**

GAS OR OIL HEATERS INCLUDED.

10 Inch,	. . . . . \$25 00	20 Inch,	. . . . . \$45 00
15 "	. . . . . 35 00	25 "	. . . . . 55 00

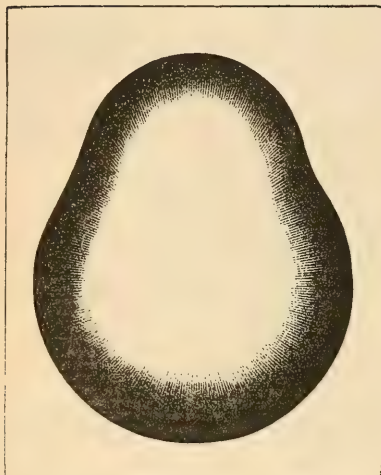
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*The Old Reliable Photo Specialties are:*

# WAYMOUTH VIGNETTE PAPERS, ROBINSON'S TRIMMERS AND GUIDES, GIHON'S OPAQUE AND CUT-OUTS.



**WAYMOUTH'S VIGNETTE PAPERS** are the best means for producing fine effects in printing. They are made in nineteen sizes; printed in black, yellow, and red bronze, to suit different qualities of negatives. They are not clumsy, do not break, cost but little, and are easy of application to any negative. They do away with all the older methods; and, in fact, they have no equal. We have quantities of testimonials; but the best guarantee of their quality and work is their increasing popularity and our increased sales. Better than any patent machine, and sell better every month.

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In parcels containing one dozen, assorted, Nos. 1 to 5.....	\$0 50
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Assorted sizes and colors, by number, per package of 15.....	1 00
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When ordering, state the number and color you want.

**ROBINSON'S TRIMMERS**, both revolving and straight cut, are invaluable instruments, and are now universally used, as they afford a quicker, better, and less expensive means for trimming photographs than any other. They do not cut, but pinch off the waste paper, and leave the print with a neatly beveled edge, which greatly facilitates its adherence to the mount. Try one, and you will discard the knife and punch at once. For ovals and round corners they are worth their weight in gold.

A full line of **ROBINSON'S METAL GUIDES**, of regular sizes, always on hand; ten cents per inch, longest way of aperture. Special sizes made to order at fifteen cents per inch, longest way of aperture.

**Robinson's Revolving Trimmer and Guide, \$1.00**

**Robinson's Straight-Cut Trimmer, . . . 50**



**GIHON'S OPAQUE** is designed for obscuring the imperfect backgrounds of copies and faulty skies in landscapes; for retouching negatives, and coating the inside of lenses and camera boxes, and for answering all the requirements of the intelligent photographer in the production of artistic results in printing. Whenever you want to keep out light, **use Opaque**. It is applied with a brush, dries quickly, and sticks.

**GIHON'S CUT-OUTS** are the very best that are made, and are now without rival in the market. They are clean cut and of desirable shapes and sizes. They are made of non-actinic paper, manufactured especially for the purpose.

**TEN** new shapes are now made **Ovals, Arch Tops, Circles, Crescent, Keystone, Maltese Cross, Palette**, etc. These are especially desirable. Thirty cut-outs with corresponding masks in a package.

Opaque..... \$0 50  
Cut-outs, per package (30)..... 1 00

Parties wishing special sizes can have them cut to order by addressing the manufacturers. No lot of less than \$1.00 cut at a time.



*The above Specialties are Manufactured by*

**ROBERTS & FELLOWS, 1125 Chestnut St., Philada.**

**SCOVILL MFG. CO. and E. & H. T. ANTHONY & CO., Trade Agents.**

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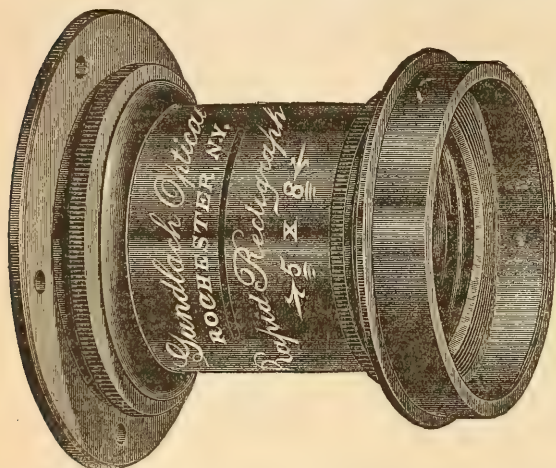
— FOR 1888. —

The Weekly issue, postage included, to all points in U. S. or Canada	\$3 00
" Monthly " " " " "	2 00
" " " " illustrated, postage included, to all points in U. S. or Canada,	3 00
With THE PHILADELPHIA PHOTOGRAPHER for 1888.	6 50

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## Manufacturers of Lenses, Microscopes, Telescopes, and other Optical Instruments.

The RAPID RECTIGRAPHIC is the BEST and CHEAPEST PHOTOGRAPHIC LENS in the WORLD.



DESCRIPTION AND PRICE.						
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How that a life was but a flower  
In spring-time."

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXV.

JANUARY 21, 1888.

No. 314.

## BURNET'S ART ESSAYS AND THEIR USE TO PHOTOGRAPHERS.

BY E. K. HOUGH.

THIS wonderful book will be of interest and value to all of our craft who believe that photographers are or can be artists.

Whether photographers can rightly be called artists or not may be an open question, but every photographer gives evidence of what he believes on the subject by the amount of thought and study he gives to the artistic part of his profession. I for one believe that photographers have as much right to be called artists as the workers in any other form of pictorial representation have. Artistic rank in either case depends on the amount of art knowledge possessed and employed. All aim at the same result though by different means, and the same knowledge is needed by all, only modified by the special needs and limitations of the varied forms of art in which their activity is manifested. And how can that knowledge be better sought by those who need it, than in books where the artistic experience and thoughts of a thousand years have been crystallized into clear words and well chosen illustrations, as has been done in the *Essays of Burnet*?

I am a believer in getting ideas from books. I have been in the active business of portrait photography for over thirty years. I began at the age of seventeen, after only three months' instruction as a daguerrotypist in a country village. I began with no art education and no other education, except what I obtained in the

common schools. But I had a desire for knowledge, and some patience and perseverance in getting ideas from books and working them into practice.

Such books for our instruction as this of Burnet's were not within the means of a photographer in those days. The numerous and beautiful illustrations made them too costly. They were only for painters, but photography itself has made them cheaper now. When I was twenty-five years old I was offered a situation in a New York gallery as positionist or operator under the light, and for over twenty years held that place, in business for myself and employed by others, mostly in New York. I have made no great success either in fame or fortune, but besides a good living I have made and invested enough to live without labor hereafter if I choose; and much or little it has all come from putting to practical use in photography the ideas of art I gained from books.

I mention these personal matters just to show that I have had at least the opportunity to know what I am talking about from the best kind of knowledge—*i. e.*, my own experience, as well as that of others.

And I am now more than ever convinced that all photographers, and especially the younger ones, would find it for their best interests to thoroughly study all such books as this, and endeavor to work into their every day practice all the ideas and principles therein contained.

The three main topics of Burnet are exactly in the line of our work: "Composi-

tion," "Light and Shade," and the "Education of the Eye."

We have to use the first two in every picture we arrange under the light, or anywhere else, and our success will depend mainly on the way our eyes have been educated for such work.

Photographers are denied the charm and mystery of color, but they have long since found that with light and shade alone the possibilities are almost limitless.

The wide range of power opened up by the introduction of rapid dry plates is a standing challenge to new marvels of pictorial art. Photographers have to think quickly and work fast. Their compositions often do not take as many minutes as the painters and draughtsmen take hours, yet may and ought in the main to accord as fully with the rules of art.

The trained artistic instinct and educated eye can see quickly and work fast, as well as the trained orator can think quickly and talk rapidly. And both may be equally correct, if both know the laws of language and of art equally well.

It would seem as presumptuous to set up to be an artist without knowing the rules of art, as it would be for a man to preach or lecture without knowing the rules of grammar. All art is only another form of language for describing persons or things, and aiding in the fuller expression of human thought.

The long chapter on the "Education of the Eye" is perhaps the most important in the book, especially to the younger men. For the trained eye is the artist's chief reliance. He must see before he can execute, whether in painting or photography, and as much in one as in the other for any valuable results.

"We can only see what we bring eyes to see," Emerson says. Every photographer knows that artistically he sees better now than when he began; and he must feel that an early course of systematic artistic instruction in the faculty of seeing correctly would have been invaluable in all his after practice.

But it is never too late to improve. So if a good book enables you to put some quality into your work not there before, or

helps you to keep up to a higher and more equal average of good results, so that even one in a hundred of your customers orders a dozen more than he would, or recommends one friend whom he would not have sent, but for his increased confidence in your skill, that alone will pay for the book. Your study of it will give you a conscious increase of power, growing deeper and wider day by day, until it permeates and modifies not only your business but your entire life, increasing your self respect, enlarging your means of happiness, and bettering your finances.

It only needs a very little benefit in any of these directions to pay for one book or a dozen. But just to buy them is not enough. Stored away on the shelf after only a cursory reading they will do little good. They must be studied and put in constant practice, then they will do much good, especially to all young and ambitious photographers who claim the right to be called artists, and seek to prove their claim by making work accordingly.

It may be said that these high artistic notions have no place in the common every day work of an ordinary gallery. But I am prepared to say from my own experience that it will better the result proportionately in a ten cent tintype as well as in a ten dollar photograph, and in a ten dollar photograph as well as in a hundred dollar painting; always and everywhere the more knowledge the better result, other things being equal.

We all know that in the moral world every action has moral quality and is governed by the same moral laws; and the more perfectly those laws are comprehended by well trained moral natures the more perfectly they will discern and conform to them in all relations of life. So too in the artistic world, the more artists know of the universal laws of art, the more readily their trained faculty will apprehend and seize upon the possibilities of a picture from the humblest materials and so compose and arrange them under the play of light and shade that they will satisfy with truth and glow with beauty to the admiration of all beholders. "Go thou and do likewise," for it is equally in your power. But always re-

member there can be no knowledge without study and no excellence without labor.

Persistent effort is the only "open sesame" to artistic mysteries and treasures. But all photographers have many unoccupied hours, which if used in the study of such books as the *Quarter Century* and *Burnet's Art Essays* will soon make their influence felt in the improved quality of their work, and like hard pressed oarsmen in a too equal race will cause them to draw slowly but surely ahead, until they come in as winners of the golden prize in the par excellence.

To have such clear instruction in all the principles of art, with a hundred or more of the most famous pictures in the world reduced to illustrate—well, my enthusiasm is in danger of running away with my discretion, so I will close.

### THE TEXAS ASSOCIATION.

DEAR SIR: Not having seen in your journal an account of the meeting and organization of "The Texas State Photographers' Association," it occurs to me that it would be interesting to the fraternity to know that we have effected such an organization in Texas, and that we are striving not to lay behind our brethren in the older and more densely populated portions of our glorious land. Mr. J. H. Webster, the "high-priced photographer" (he so advertizes himself) of Dallas, conceived the idea that an association would be beneficial to the fraternity in Texas, and took it on himself to call a meeting, to be held at Dallas, August 6th. There were some twelve or fifteen present at that meeting, Palestine, Sherman, Denison, Denton, Fort Worth, and other towns being represented. A preliminary organization was effected, and the name above quoted adopted; and an adjourned meeting, to be held October 27th and 28th, at Dallas, to perfect the organization. At the same time it was determined to make an exhibit, as an Association at the *Texas State Fair and Dallas Exposition*, to be held at Dallas, from October 20th to November 7th, 1887. Accordingly, a committee was appointed to secure space, and make all necessary arrangements to

receive and exhibit such pictures as might be sent in. Said committee consisted of S. T. Blessing, A. R. Billows, and H. B. Hillyer. The committee having made the necessary arrangements, prepared and sent out circular letters to the photographers throughout the State, inviting exhibits, and asking attendance at the adjourned meeting.

The photographic exhibit was quite a success. A room 25 x 60 feet was well filled with the products of the craft from a number of towns, and in variety sufficient to make that part of the Fair very interesting, as was proven by the number of visitors at all times crowding the space during the Fair.

Entering the room and keeping to the right, the first exhibit was by H. B. Hillyer & Son, of Dallas; next came the collection of D. H. Sultz & Brother, of Fort Worth; next Kirk & Drake, of Dallas; then V. Cawker, of Gainesville; and adjoining that was the exhibit of W. D. Jackson, of Waco; then G. C. Rhine, of Fort Worth; and next to his was J. H. Webster, of Dallas. There were other exhibits, but I am not at this time able to recall their names.

I may also mention that the centre of the room was occupied by a show case, constructed especially for the occasion, and well filled with samples of cameras, lenses, card stock, chairs, etc. This was the exhibit of our well-known stockdealer, S. T. Blessing; and, by the way of parenthesis, I may remark, that Mr. Blessing has lately removed his photographic supply house from Galveston to Dallas, and says that the move has been eminently satisfactory, as business has increased from 60 to 80 per cent. above Galveston sales, and that his Dallas branch bids fair to overreach in sales the home house, situated at New Orleans.

But to return to the Association. The meeting was held according to adjournment, a constitution and by-laws adopted, and a membership of some thirty or forty enrolled. The officers for the ensuing year are: J. H. Webster, President; six Vice-Presidents; C. T. Cooke, Secretary; and S. T. Blessing, Treasurer. The place appointed for the next meeting is Waco, with W. D. Jackson, Local Vice-President, as chief com-

mitteeman. Time to be determined by the Executive Committee.

Thus we have at last made a beginning in Texas, and we trust our Association will grow and prosper, in ratio, at least, to the prosperity of our great and growing State.—  
SOLOMON T. BLESSING, *Dallas, Texas.*

### WHY HAVE SOME NEGATIVES THIN EDGES?

THIS is a question that comes to the front now and again, and it generally receives a goodly assortment of answers. An inferior emulsion, bad coating, the surface of the glass being concave so that the emulsion runs to the middle of the plate, uneven development, and perhaps other possible causes are suggested to account for the evil; but in many negatives that we have recently seen we have traced the cause to the unsuitableness of the lens for the work that was expected from it, and, further, to the unwise use of the lens. Many of the detective cameras are now constructed with lenses complete yield negatives which are defective, more or less, in the way that we are about to refer to.

It is a well known fact that when the working aperture of the lens is less than the length of the plate, a pencil of light of given angle covers a larger space at the edges of the plate than at its centre, because in the one case the pencil impinges perpendicularly upon the plate, and in the other case obliquely. This causes a thinness at the edges of the negative, but the effect is slight except when a wide angle is included in the picture. The fact, also, that the oblique pencil passes obliquely through the diaphragm gives another reason why the edge of the plate is less intensely illuminated than its centre. Practically these defects must be borne with, for the only remedies that seem to have been suggested have not proved acceptable. A concave plate will obviate the obliquity of the pencil, and many years ago Mr. Sutton made a diaphragm with wings to it, so arranged that they tended to reduce the perpendicular pencils of light, and to allow the oblique pencils to pass without interference, so, in a measure, equalizing them.

Under ordinary circumstances, however these effects are so slight as to rarely be troublesome; but the point of these remarks is that this tendency to the falling off of the light at the edges of the plate exists, and that to secure an evenly illuminated plate it is necessary to avoid exaggerating this tendency.

If a lens has an aperture equal to the diameter of its combinations it cannot cover a plate much larger than its own diameter without a considerable falling off of light at the edges, due to this circumstance. This is clearly shown by looking at such a lens from the position of the focussing screen. If the eye is brought to the corner of the screen, the aperture of the lens will be seen to be much reduced by the mounting of the lens. The largest diaphragm that allows its whole aperture to be seen without interference from the mount, is the largest aperture that it is advisable to use when an evenly lighted plate is desired. An aperture larger than this aggravates the tendency to thin edges. It will be found that a similar lens of longer focus will allow of a larger proportional aperture; but a larger lens means one that is more expensive and heavier, and the change is therefore incompatible with cheapness and lightness. The diminution of cost and the lessening of weight are very desirable items in all portable apparatus; but the quality of work ought not to be allowed to suffer for the sake of a little saving in these things.

In some apparatus of the sort under discussion, the shutter is so constructed that it tends to reduce the illumination at the edges of the plate. Probably all shutters working outside the lens, if they open from and close to the centre, give an exposure that begins and ends at the centre of the plate. A rectangular opening passing in front of the lens at a uniform rate, gives an exposure of equal duration to the whole lens surface; or, if the shutter works on a centre and the aperture is bounded by radial lines drawn from the centre, the same result is obtained. A circular aperture sliding in front of the lens tends to rob the edges of the plate of some of the light that it might otherwise receive.

In drawing attention to these points we are only reiterating what has been said

before. In our columns of fifteen years ago, Edward L. Wilson, in his American correspondence (*Photographic News*, vol. xvi., p. 17), quotes from the well-known optician Zentmayer concerning the erroneous notions more or less prevalent about exposure shutters. We have given the chief points of his remarks above.

We cannot too strongly urge the makers and users of photographic apparatus to get to know so much of the principles of its construction and action that they may know how much of fault it is possible to eliminate, and how to use suitable apparatus so as to secure the best results that are attainable.—*Photographic News*.

### COMBINATIONS OF SILVER CHLORIDE WITH OTHER METALLIC CHLORIDES.\*

BY M. CAREY LEA.

In a series of papers lately published, I have expressed the view that the principal and characteristic product of the action of light on the silver haloids is a combination of the haloid with a small proportion of its own subsalt. Such was the result of my own analyses, and the opinion was supported by the tendency which the silver haloids were found to have to unite with foreign matters, such as many dyes and other organic compounds, showing the existence in these silver haloids of a singular disposition to form compounds outside the laws of atomic proportion.

This opinion finds additional support from another argument and a more nearly parallel case, for it appears that silver chloride (and doubtless the other silver haloids) can unite with small quantities of certain other metallic chlorides. That an actual combination—though one quite outside of atomic proportion—takes place, is proved by two facts: first, that the chloride with which the silver haloid unites, though soluble in water, is not removable by water; again, that the properties of the haloid are markedly changed.

This combination with another metallic chloride furnishes a much nearer parallel case to the photo-salts than does the combi-

nation with a dye. For if silver chloride is found to be capable of taking up a small quantity of ferric or other chloride, and of retaining it so firmly that it cannot be removed by washing, and only with some difficulty by hydrochloric acid, we are thereby justified in admitting that the silver haloid may easily form a stable combination with a small proportion of its own sub-salt.

In all these compounds the tendency seems always to the combination of a large proportion of the silver haloid with a small one of the other substance, whether the latter is a dye, another chloride, or a silver sub-salt—all show the same disposition, so that I am justified in saying that my view of the nature of the photo-salt is supported by the existence of many analogous bodies.

These compounds of silver chloride and other metallic chlorides form when the silver haloid is in the presence of their solutions at the moment of its precipitation.

*AgCl with Fe<sub>2</sub>Cl<sub>3</sub>.*—When to dilute hydrochloric acid is added, first, ferric chloride, then solution of silver nitrate, the silver chloride thrown down is not white, but buff-colored. The ferric-chloride, which has united with the silver chloride, cannot be removed by washing. Agitating with hydrochloric acid dissolves out part, but not all. It is very interesting that this small quantity of iron profoundly affects the sensitiveness of the silver salt to light. To make an accurate comparison, two solutions of silver chloride were precipitated, the one from pure hydrochloric acid, the other from hydrochloric acid mixed with Fe<sub>2</sub>Cl<sub>3</sub>; both were shaken up with hydrochloric acid, so as to remove all the more loosely combined iron salt from the one, and to place the two under exactly corresponding conditions, the presence of the iron salt alone excepted. They were then washed. When both were exposed together to light the difference was extraordinary. The normal AgCl had passed to a full violet, with an exposure which produced on the other scarcely any visible effect. Even after an exposure to diffuse light of two hours, the difference was still very striking.

*AgCl with CoCl.*—When cobalt chloride is added to hydrochloric acid, and then solution of silver nitrate, a pinkish precipitate

\* From the American Journal of Science.

is obtained, whose sensitiveness to light is less than that of normal silver chloride. But the diminution of sensitiveness is far from being so great as in the case of AgCl precipitated in the presence of ferric chloride.

*AgCl with other Chlorides.*—Both nickel chloride and manganous chloride attach themselves to silver chloride when the latter is precipitated in their presence. Cupric chloride seems to have no such tendency. Gold chloride shows a marked tendency to attach itself to AgCl. When silver nitrate is added to dilute hydrochloric acid, with which a little auric chloride has been mixed, the precipitated AgCl has a reddish shade. Continued washing renders this paler, but does not seem to remove it. After ten decantations, each with a hundred volumes of water, the color imparted by the gold is still visible. What influence the auric chloride has on the sensitiveness of the silver salt it is not easy to say, as the gold present is quickly reduced by exposure to light, so that the AgCl, instead of passing to violet and chocolate, as in the case of pure AgCl, gradually darkens to a pure black.

The facility with which these compounds are formed explains the necessity, in analytical determinations of silver as chloride, for digestion for a considerable time with dilute hydrochloric acid. Even then it is very doubtful if all the foreign chloride is removed. Ferric chloride is especially adherent. Indeed, it has been said that when iron once comes into contact with silver, it is next to impossible to get rid of it, and the reason lies in the strong affinity which the two chlorides have for each other. Accordingly, much silver nitrate sold as absolutely pure, contains iron evidently carried down with the silver chloride when precipitated in the manufacture.

These reactions of AgCl are interesting in several ways. They support the theory that I have proposed, of the photo-salts being compounds of two chlorides of silver not combined in definite proportions, by establishing the existence of other analogous compound chlorides.

Again, the sensitiveness to light of AgCl is so strongly modified by mere traces of ferric chloride, that evidently a quantity of

the latter substance, quite too small to visibly affect the color of the AgCl, may materially change its sensitiveness, thus affording an illustration of what takes place in the latent image, where the presence of a quantity of  $\text{Ag}_2\text{Cl}$ , too minute to be visible, is sufficient to powerfully influence the substance combined with it.

It also furnishes an explanation for a well-known fact that has hitherto seemed anomalous. It has long been known that a trace of mercuric chloride suffices to greatly diminish the sensitiveness of silver chloride to light. This isolated fact now becomes simply one of a series. AgCl combines with a small proportion of mercuric chloride just as it does with other metallic chlorides—those of the iron triad, for example—and does not give it up when washed.

Debray (quoted in Gmelin-Kraut, article Silver) has, indeed, expressed the opinion that the mercuric chloride can be entirely removed by washing with water. To fix this point I have sought for a convenient means of detecting small quantities of mercuric chloride in presence of AgCl, and have found it in a solution of stannous chloride made strongly acid with HCl. Pure AgCl is not darkened by this reagent, provided that light is carefully excluded, but if mercuric salt is present, a brown or brownish black coloration results. Long washing has with me wholly failed to remove the mercuric salt. I therefore look upon the combination as one of considerable stability.

All these combinations diminish the sensitiveness of AgCl; but this effect is greatly stronger with those chlorides which easily part with one equivalent of chlorine, as we saw in the case of ferric chloride. Mercuric chloride acts in the same energetic way.

It seems, indeed, that the reduction of sensitiveness in these cases is somewhat out of proportion to the amount of chlorine that could be yielded up by the trace of the foreign chloride which is combined with the AgCl. But this is, perhaps, to be explained by this trace of chlorine holding in check the initial movement toward reduction.

It is worth observing that experiment and observation are constantly tending to enlarge the number of substances with traces of which the silver haloids show themselves

capable of uniting, with great modification of their properties as a consequence.

The reduction of sensitiveness that results from the presence of certain other chlorides will undoubtedly in the future be of great value in aiding toward a solution of the problem of rendering permanent photographic images in natural colors. Indeed, it was Poitevin, I think, who found that his colored images resisted light better when treated with lead chloride and dextrine. The property was observed, but the nature of the action remained obscure. We now see its explanation in the tendency of the lead salt to check reduction. Zinc chloride I found available, like lead chloride, to regenerate white silver chloride by the action of light on colored protochloride, and thus to give aid towards that very difficult requirement in heliography—that white light shall express itself by producing white.

### HOW ABOUT OUR WORK NOW?

DURING my perambulations around and about New York, one thing forcibly struck me, and that is that the portrait work, as a general rule, is very much *inferior* to that which was turned out years ago. That many wonderful effects have been and are obtained in *posing* by the use of gelatine plates, I do not deny; but the effects of light and shade, and quality are not nearly so good as they were when the old collodion process was used. The prevailing style being a very much misnamed “Rembrandt,” is the very worst that could be attempted with a gelatine plate, which will certainly do more than the collodion to block up the already bad enough straight, thick noses and expressionless lips rendered by it. A friend of mine remarked one day, “It’s a good thing for these athletes, with their heavy jaws and their hair cut short, in order to show how nicely their ears stick out. It just slicks them off nicely.”

There must be other reasons. The gelatine plate is no easy thing to get the better of, in spite of the assertion to its simplicity of working we so often hear; there’s a world of uncertainty about it, more especially as the sensitiveness of the emulsions are in-

creased. It cannot be coaxed and mended like the old process. Then there is a great deal of doubt in the mind of the operator, which, in spite of constant use, he cannot get rid of. Then, the club work, in which the photographs are literally ground out as in a mill. How in the world so many vile things dare be sent broadcast, and by men who *do* know how and have done better, I am at a loss to know, unless it is through the force of circumstances; while, otherwise, there are so many photographers who actually cannot tell a bad picture when they see it, that they, above all others, are the worst enemy we have to fight against, because they educate the public to the belief that a photographic picture costs little or nothing.

It seemed strange to me that so few *prints* by the old “carbon” process were exhibited. It was unfortunate that this truly valuable process was “killed” by misrepresentation and fraud. There is nothing that will give such beautiful gradation of tone, such “juiciness” in the shadows and detail as this. But it will never compete with silver printing in price; that it would do so, was one of the assertions of the extortioners who injured it more than any other. Now that photographers have become accustomed to handling gelatine negatives, it will be found not nearly so difficult to make the positives in the pigmented gelatine bichromate. There is no difficulty in obtaining the tissue from respectable houses, who will not sell you some that has been lying by for a decade. I doubt very much if any tax would be imposed; on the contrary, I feel assured they would only be too glad to have it brought more prominently before the public. A careful and intelligent workman can soon master the process; and it would stir up new life in the business. Besides, it’s just the thing to print from your gelatine negatives.—ABM. DE SILVA.

### THE OPEN CORNER.

THE magic lantern is becoming more and more popular among amateurs since they have learned that “photography produces nothing more beautiful than a lantern slide.” Mr. Fred. E. Ives, of Philadelphia,

has done much to make the lantern enjoyable by the improvements he has made in the ether-oxygen light, using ether as its equivalent instead of hydrogen. At the stated meeting of the Franklin Institute, Philadelphia, held December 21, 1887, says the *Ledger*, Mr. Ives read a paper upon the "Ether-Oxygen Lime Light," describing the means by which a small portion of the oxygen supply is charged with ether vapor and conducted to the hydrogen side of the jet. Mr. Ives invented and patented a saturator in 1882, and he has now made certain improvements in his apparatus so as to increase its effectiveness while reducing its size, and to permit of the use of petroleum ether (rhigolene), which gives the same light as sulphuric ether, but vaporizes at a lower temperature, costs much less, and contains neither alcohol nor water to accumulate in the saturator. "The saturator is in the form of a single metallic tube, two inches in diameter and thirteen inches long, with a handle at the middle and a stopcock projecting upward at each end. A neck, like that of a bottle, projects from the screw cap at the end, and is closed with a cork for convenience in filling. The passage for oxygen is over twenty inches long, in the form of a zigzag channel through the upper surface of the roll of porous material, and secures complete saturation of the gas with vapor. This saturator can be filled from a bottle in one minute, and is ready for use at once, or may be kept filled for any length of time. The petroleum ether costs only thirty cents a pound, which is less than half the price of sulphuric ether; it also vaporizes at a lower temperature, so that the light can be used successfully even in a very cold room, and it has other advantages."

We have no doubt that lantern practice will soon find an important place in our photo-literature. We are ready to hear from those interested, and are willing to join in the contest.

MAGNESIUM light in photography is also making itself useful in new ways, says the *Ledger* (Camera Column):

"A rather novel and decidedly interesting application of photography was made in this city a few days ago, by William P.

Buchanan, of Buchanan, Bromley & Co., and consisted of the photographing of anatomical subjects at night, immediately after their dissection. This was rendered possible by the use by Mr. Buchanan of his 'lightning flash' compound, the experiment being tried at Dr. George McClellan's 'Pennsylvania School of Anatomy,' on Tenth Street, above Walnut. Dr. McClellan complained that the drawings which he had been able to obtain, while the finest of their kind, were idealized too much and did not present the subject as the student finds it. He also said that the tissues change so rapidly when exposed to air that photographs, unless taken immediately after dissection, gave no adequate idea of the objects, and the light in the clinical halls was of such a character that photography by the ordinary methods was out of the question. Mr. Buchanan undertook to overcome the difficulties by doing the work at night, and with the artificial light compound. The camera was focussed by aid of the light from a match, and very rapid plates (Cramer's No. 40) were used. About fifty grains of the compound were placed on the edge of a small iron shovel and held a little behind but on the level of the lens; and after the plate-holder slide had been withdrawn and the lens uncapped, a light was applied to the compound. There was a blaze of intensely white light, lasting for about one-tenth of a second, and the exposure was complete. Six plates were used, and in the case of three or four a screen of tracing muslin was hung between the flash and subject. The plates were developed the next day and proved to be excellent printing negatives, the details being brought out so sharply that the prints are pronounced to be of very considerable scientific value."

Mr. Buchanan (of Buchanan, Bromley & Co.) has sent us some very interesting proofs from his negatives, which do him great credit.

COMPOSITE PHOTOGRAPHY.—Mr. W. I. Lincoln Adams, editor of the *Photographic Times* recently regaled the readers of the *New York World* with nearly a two column article on "Composite Photography." His text was some recently made composites of

a theatre company. Among other things he says:

"Thus it may be seen in the composite portraits before us, which were made of Mr. Frohman's Lyceum Theatre Company by Mr. B. J. Falk, of this city, that the result in the first case is an apparent blending of Messrs. Miller, Wheatcroft, and Faversham, their faces having the largest number of similar features in common. Each of the five other faces which go to form this group has a distinct individuality of its own, but which in its unassisted struggle for mastery succumbed to the combined influence of the three so much more nearly alike, leaving but a faint trace of its presence. Mr. Lemoyne's face, we find, is the widest, and its outlines may therefore be faintly seen in the picture. The eyes, the nose, and the mouth are very distinct and clear in this portrait, for a composite.

In the composite of the ladies we are less certain of the likeness, though at the first glance we seem to see a possible combination of Misses Dillon and Crossman. Some peculiarity of each of the other members of the group is, however, suggested in the blending, such as, for instance, the well-modelled cheek and twinkling eye of Miss Cayvan, the placid expression so characteristic of Miss Henderson, while even the pleasant smile of Miss Whiffen is betrayed by the even row of teeth which at first sight appears to be a blemish in the multiple lower lip of the combined portrait.

"The third picture is a very curious result obtained by combining the composites of the ladies and gentlemen of the company. It gives us what appears to be a female face, but with strong masculine traits; it is, nevertheless, distinctly feminine, a striking illustration of the Darwinian survival-of-the-fittest theory. Whatever other physiological facts these "composites" may establish, it is certain that there is no gain-saying the conclusion that the average Lyceum actor and actress demonstrate in their pictures his or her indisputable claim to a face in which a striking amount of intelligence is combined with more than the average of good looks." Very good, but—

With a composite photograph in hand we always think of John T. Raymond the in-

imitable comedian, who, when seized with an assumed cramp in the viscera, cried out, "Oh! I've got it! I don't know what it is—but—I've got it!" And our pain is more or less than his when we see any one trying to make anything out of a "composite" photo-portrait potpourri.

ART IN PHOTOGRAPHY.—One of our English subscribers, in renewing his subscription for 1888, very justly holds us to account, as follows:

"I should think *all* people who want posting up will contrive to subscribe to the PHILADELPHIA PHOTOGRAPHER *as a matter of course*, as I don't see how or where they are to get a much better investment. Still, greatly as I admire your valuable paper and the excellent illustrations that adorn its pages, I must say that your American professional photographers frequently give themselves away, mostly through innocent ignorance. Take the photo called "Brunhild" in the issue of August 6, 1887; as regards the figure I have nothing but admiration, but does any one capable of reasoning believe that at the time these legendary heroes are reputed to have flourished that they had such fire grates and carved cabinets as appear therein? I say such things are barbarously incongruous and totally *spoil the effect*. Now if an artist like Brobresch, in Leipzig, had taken it, he would have used either a rocky low background with clouds, or a woods with, perhaps, an old timber building of the rudest and roughest description, and *not* have shed such a preposterously modern effect into the picture. Take also the study of 'Falstaff,' in the issue of July 3, 1886; admirable, but an oil cloth floor and modern background are 'horrible desecration.' Also the figure statue study 'Meditation,' in October 2, 1886: this is excellent as regards the figure, but the background is eminently unsuitable; a background of trees and sky would have been far better. Now, my dear sir, don't you think you could manage to give, in the coming year, a few hints on this all-important subject? If it is your aim to lead and improve photographers, pray lend a hand to lead them into better paths. You have some of the finest photographers

on the globe; all they want is a little artistic advice on such matters as above. I have artist friends who have seen and admired many of your illustrations, and they concur in my remarks. The thing is so glaring, both as error and anachronism, that it hits me like a blow in the face. Much is to be learned by judicious study of how painters obtain their effects. You don't generally find them make such mistakes as those alluded to. I hope next year to see some improvement. Photography pure and simple, without a little spirit of art hove in, is as dry as the desert of Sahara, or I should say Petra.

"I am aware there are some who understand the science of background effects. The print in the number of August 20, 1887, is clear proof of that. Nothing jars on the feeling in that."

Moral—Study Burnett's Essays.

AN American subscriber who has art aspirations, writing from Great Bend, Kan., says:

"Yours of the 19th inst. came to hand a few days ago, and with it *Mosaics*, which we were looking for, and also *Quarter Century*. To say 'we thank you,' but very slightly expresses our gratitude for the work you are doing. We have examined *Quarter Century* as fully as possible since it came, and are more than pleased with it. It is different from *Photographics*; in fact they are companions. Either is worth more with the other than alone, and together they are just what we need.

"*Mosaics* also is chuck full of good things. It is worth \$5.00 to any live photographer.

"We would like very much to become personally acquainted with you, and if you ever come into this western country please call on us.

"LEWIS BROS."

"DRY FOREVER."—We have a friend who was very slow in developing a willingness to give up wet plates and try the dry. He now writes thus:

"I must thank you for the *Mosaics*. I have looked it over, and must say that it is the right thing. No more bosh about wet plates; that is of the past, and all sensible men with a spark of enterprise will not waste time with a wet plate, though I can

stand with my hat off for hours in a cold breeze in admiration and respect for the dead and honored old process. So many years I was its willing slave, happy as a king, but still a slave; and loaded like a mule have I tramped the world over with the sweat dropping from my nose and chin, many, many times, but still happy and confident that no dry plate could ever half fill its place; but now my dear old master is dead and buried, and I have yet to find a single place where in my hands a good dry plate is not worth at least two wet plates. It is like the comparison of a stage coach to our most splendid railroads."

### SOME LIGHT ON THE SUBJECT.

WE have just been making some light. We have just been "squaring up" the drawer editorial of what was left from our wrestle with 1887, and have been clearing the way for 1888. After the drawer had been cleared, a famous mass of paper lay upon the floor at our side. This we consigned to the grate and then sat down upon the floor in front, Arab style, poker in hand, and "watched the old year out." A great roar and a big flame started at once, and the rejected manuscripts, angry letters, untimely suggestions, threatened lawsuits, selfish proposals, schemes with "millions in 'em," and a further much varied assortment of "chestnuts" writhed and hissed and curled up and charred; grew red—then black—until, the excitement subsiding, we applied the poker and renewed the conflict. The whole performance made a lot of light. As the fragments of paper turned over we caught here and there a printed line or written name and dotted down a number of thoughts for future use. Some things went which we heartily wished might end in that way. Here and there we rescued a text to show how little thought some of our good friends give to the subject in hand when they write us for "reform." Here is an example:

"I wish to ask if you can inform me how that developer called Moreno's Developer is compounded. I should like to be able to make some like it, but I cannot afford to buy all my developer ready mixed. This

may be a trade secret, but perhaps you can give me one used or made the same way that will work just as well. If so, it will oblige me very much. I hardly see the need of so many trade secrets. Now here is a sample: The Argentic plate people must keep the contents of one bottle a secret to sell for 25 cents. If they wish to sell their plates, why not publish the formula for developing them, like other people who sell dry plates? I think it would be well to publish a list of queries of the above kind for the consideration or benefit of any party to whom it may concern. How much better it would be if all parties would try and do their share toward benefiting their friends and co-workers in business, instead of withholding the best things for selfish purposes."

Our friend does not realize that we cannot give "trade secrets." We would if we could, but how should we ever *know* if we did. Dealers frequently encourage photographers to hold back their discoveries, though, as a rule, the members of our craft agree with our correspondent that no "secrets" should be withheld from the fraternity. We all owe our main success to what has been *given*. Let the blessed, generous work go on.

Another correspondent does not seem to think how the wondrous popularity of our art has widened the field of the camera, and that *all* classes of people are concerned, and that some apply their leisure in one direction, and some in another; that it behooves us, therefore, to apply ourselves to the *help of all*, and not to any special class or in one direction only. He says:

"I have taken your journal since 1881, and like it very well; but it would meet my wants better if there were *more* of everyday practice in it. I don't mean to say that you haven't it in the journal, but I mean leave out some of the science of the art that is beyond some of us smaller ones, and give us more on lighting, posing, retouching, treatment of silver-bath, etc. You asked for the opinion of your patrons the opening of the year. This may answer for the next. Probably it pleases more of your subscribers the way you write at present."

He and all of our patrons may be assured

that, being informed on all their needs, we shall endeavor to cater for and to satisfy one and all. Give us more light.

### MOSAICSIANA.

THE sixth thousand of *Photographic Mosaics*, 1888, is being rapidly taken from our shelves, to the satisfaction of all concerned. It never had such a sale before, nor was it ever better. Some of the press comments upon it are given below:

As Liesegang's *German Almanac* is the first among the German annuals, so Wilson's *Photographic Mosaics* leads the year books in the English language. For twenty-two years the only American Annual of Photography, we now receive the twenty-fourth volume of *Mosaics*, with the usual feeling of pleasant anticipation as one greets an old friend. Although already more than "of age," *Mosaics* continues to keep well abreast of the times. Although conservative in many ways, still showing healthy progress, and giving evidence of a useful and prosperous future. *Mosaics* this year opens, as usual, with a review by the editor; it is entitled "A Few Hints Backward," and is full of good advice and useful suggestions. The book is embellished with three capital Mosstypes, which are now favorably known as photo-mechanical prints, presenting the photographic half-tones dissolved into lines. One of the illustrations is an excellent portrait of the editor, by Salomon, of Paris. We can do no better, in giving an idea of the usefulness of the book, than to reproduce *in toto*, without comment, the table of contents.—*Photographic Times*.

This popular little annual is again upon our table. It is illustrated with three excellent photo-mechanical prints by the Mosstype process, and contains a good selection of valuable papers by prominent professional and amateur photographers. There is an excellent review of recent photographic work by the editor, which is full of suggestions for the future, and in the characteristic strain of this well-known writer. The various papers throughout the balance of the volume are from pens well known in

the photographic world, and the whole forms a compendium of photographic information that should be in the studio of every photographer.—*Anthony's Bulletin*.

This little compendium, the twenty-fourth of the series, ranks among the best of a class of publications which have grown to be invaluable to all grades and classes of photographers. The editor has this year drawn upon the resources of about half a hundred contributors, the list containing the names of a majority of those best known in connection with the art-science, such as the veterans, John Carbutt, David Cooper, Gustav Cramer, E. M. Estabrooke, and Jex Bardwell, as well as the promising juniors represented by Charles T. Fellows, H. L. Roberts, H. S. Bellsmith and others. Each writer has contributed what he evidently thought would prove novel or useful to others; consequently the subjects treated are as varied as the list of contributors, and the combined result of their labors is one that must prove valuable to all possessors of the work. Doctor Wilson himself presents an introductory chapter under the title of "A Few Hints Backward," which is a comprehensive view of the progress of the year in various branches of photography, with such comments and explanations as his own quarter of a century's career as a theoretical and practical photographer well enables him to make. Among the subjects noted in this review are the steady progress in orthochromatic photography by Fred. E. Ives, of this city, Dr. Vogel, of Berlin, and others from the side of the practitioner, and by John Carbutt on the side of the plate-maker; the researches of Dr. M. Carey Lea into the nature of the red and purple chloride, bromide, and iodide of silver, which he thinks give promise of eventually leading to the reproduction of natural colors; instantaneous photography with the magnesium light, as well as astronomical, composite, and balloon photography; concluding with a mention of some of the best-known members of the photographic fraternity who died last year.—*Public Ledger*, Phila

Moral: Purchase *Mosaics* 1888, before it is too late to get it.

## OUR PICTURE.

WE make no apology for presenting another study from the studio of Mr. H. P. Robinson, of Tunbridge Wells, England. Our readers are very familiar with the productions of this master in photographic art and always welcome them, as they do also his graceful writings which began more than twenty years ago with *Pictorial Effect in Photography*, and continue to this day in his delightful and instructive "Letters on Landscape, addressed to an American Friend," now being published in the *Photographic Times*.

"*Carolling*" is the latest subject picture sent forth by Mr. Robinson we believe. The original\* is in size 13 x 25 inches; a platinum print of a rich brown tone and a remarkably fine work of art. We regret that the majority of our art-loving readers must see it so reduced. But a great deal may be learned from it thus. It has some singular qualities: the artist has so conscientiously followed the rules, that there is not a single repulsive feature about it, nothing to distract the attention or to "hold the eye and mind" as a mistake. It represents a rural scene such as is not confined to England, but which may be caught in our own meadows. It is so filled with light and air and space that one may take in the heart's-full and mind's-full of delightfulness as one inhales the great solid breaths from a mountain breeze, and yet the sentiment brings one down to the softness and tenderness of the heart-song, for

"This carol they began that hour  
How that a life was but a flower  
In spring time."

Again, the brilliant light caught by the fleeces of the peaceful flock exhilarate the artistic sense, while the soft shadow which falls slanting in front of the joyous maidens brings us back to quiet again, though not meant to even gauze the joyous hopes of the maidens who, as they stroll along, send forth their dreamy cazonet. The sheep are just as we see them in nature—the light caught just as we see it in paintings of kindred subjects. The figures are admirably

\* Sold by Messrs. Roberts & Fellows, American agents, 1125 Chestnut St. Philadelphia.

posed, with light and shade and lines opposing or supporting, and all through there is that wondrous harmony and balance which could only result from the exercise of most delicate artistic feeling and skill. Just enough variation is introduced into the quiet sky to give effect to and agree with the other lines of the composition, and to secure that feeling of repose which is the chief charm of the picture.

"Carolling" has already been exhibited at several exhibitions in Europe, and on each occasion has secured a medal for its much honored master. We regret that it was not in time for the Chicago exhibition.

In many respects Mr. Robinson stands unapproached and alone in this particular reach of photography, and, therefore, comes in for a large share of envious and sometimes acrimonious and "learned" criticism. The nature of some of it may be conjectured by reading his answer to something which appeared in a late issue of the *British Journal of Photog.* The reply is so good humored, so humorous, and so instructive withal, that we reproduce it entire.

"The curiosities of criticism are a mystery at which I have often wondered, and usually enjoy in silence when my own works are concerned, but there is one remark in the notice of the exhibition, reprinted by you from the *Builder*, which, as it pertains to a matter not of taste but of fact, I should like to correct. The writer praises the landscape part of my picture—'Carolling'—which, he says, 'has really the softness and distance of a water-color painting,' and, he adds, 'but we imagine this has been touched upon, and is not pure photographic work.' To this unwarranted statement I have to say most emphatically that this picture is absolutely free from any touching, or dodging, or falsifying, even to the innocent extent of the removal of a freckle, being in this respect, I fancy, purer than nine-tenths of the pictures exhibited, as you may yourself see in the unmounted print I have sent for your inspection.

"Now I am on the subject, I may say that I am aware there has been a good deal of controversy about the truth of this picture. I know, also, that one good-natured critic neglected his legitimate business, both on

the press day and at the *soirée*, that he might devote himself to the genial task ('picketing,' I think it is called in the region from whence he comes) of pointing out to the outside press and others that the figures are too tall, and their shadows too long, and other unpardonable artistic sins. But how can I help his ignorance? I am charitable to call it ignorance. My only reply is, that their proportions should be absolutely exact, and that the shadow is the work of nature. As Dryden tells us—

'Art may err, but nature cannot miss.'

"It is a smaller argument, I suppose, to say that I was not likely to make a mistake of this simple kind after thirty years' practice.

"The picture is confessedly a combination print from several negatives, but the negatives were all taken at the same hour of the day, at the same time of year, and under similar circumstances. Nothing was altered but the focus of the lens to suit the different planes. I knew that the shadow to a superficial mind not accustomed to observing nature would look too long, but that effect is caused by the slope of the ground, and I could not alter the level of the land to aid the understanding of a superficial mind.

"Now I may as well confess (for I have no secrets in my practice) a thing which would have rejoiced the heart of the kindly critic if he had found it out for himself, but which does not detract from the picture. Part of the picture was photographed as long ago as 1881. There was a want of balance which did not please me, so I preferred to wait for the two trees to the left, which had just been planted, to grow. I waited six years, and a photographer who is not endowed with that quality must never expect to do good work;

"Supposing—which is a large word—that the *real* object of our good friend was scientific accuracy, what would be the use of it in a picture intended to give delight to the eye only? Let us have truth by all means, or as near to it as we can go; but it is not a paradox to say that literal fact is often opposed to artistic truth. Painters seldom bother themselves about the trivialities of scientific fact; they never stop to consider whether the wings of their angels

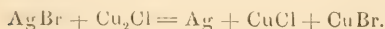
would support them in the air; and I remember that Turner was much applauded for introducing two suns in one of his pictures, because the pictorial effect required some such device! And I may conclude by adding that, judging from the falsification of the report of a late exhibition, the critic I allude to is scarcely a trustworthy authority on a question of truth."

The phototype reproductions of "Caroling" were made for us by Mr. F. Gutekunst, Philadelphia, at his new works. He has done all possible to preserve the feeling of the original and has done admirably, too.

[Translated for the Philadelphia Photographer.]

### DEVELOPING PROPERTIES OF THE DOUBLE SALT OF PROTO-CHLORIDE OF COPPER AND CHLORIDE OF AMMONIA.

CONTINUING our investigations on the reducers applicable to the development of the latent photographic image, with the view of discovering developing agents more powerful than those that are now at command, we have ascertained that the ammoniacal solution of the proto-chloride of copper has precisely the desired properties. Here, as in the case of hydrosulphurous acid, we have unfortunately met with obstacles to the practical use of this compound. When an impressional plate is subjected to the action of the ammoniacal proto-chloride of copper, a superficial image is at once formed by the reduction of the bromide of silver. From the cuprous chloride and bromide are formed according to the reaction:



Now, this cuprous chloride and this cuprous bromide process, as it is known, has the property of destroying the latent image; the reduction ceases, therefore, in a short time after immersion, and the clichés obtained infallibly lack intensity. The liquid besides offers other chemical phenomena which seem rather complex, and on which it would be here too long to dwell. The products of the reaction mentioned above are not the only cause of the destruction of the latent image when the operation is performed in the presence of the air, for under

this action the proto-chloride of copper soon changes, furnishing cuprous salts whose destructive action joins with that which proceeds from the development itself. To remove this cause of failure, we have operated away from the air, but the results, although better, did not realize the hopes that we had founded on this method.

The processes used for the preparation of this developer were the following:

1st. Production of an acid solution of the proto-chloride of copper by ebullition of chlorhydric acid in presence of the oxide of copper and metallic copper, precipitation by water, washing the precipitate away from the air and light, and redissolving in ammonia.

2d. Successive additions of chloride of sodium, of sulphite of soda, and ammonia, to a solution of sulphate of copper. This last process offers over the previous one the advantage of being very simple, but it is inferior in regard to the purity of the product obtained, for the double decompositions which accompany the formation of the proto-chloride of copper produce also salts which are inert in regard to the reaction to be obtained. The bromide and the iodide of copper have also been tried and gave us analogous results.

Notwithstanding the imperfections of the images thus obtained, we have thought it useful to mention these experiments, which, although having but little value from a practical point of view, might furnish another element toward the intimate knowledge of the question of the development of the latent image.—AUGUSTA AND LOUIS LUMIERE, in *Le Moniteur*.

[Translated for the Philadelphia Photographer.]

### LEAD STRENGTHENING.

BY ENGINE HINLY.

HAVING mentioned that this process, as invented by Dr. Eder and Captain Tort, has been long used for wet plates, I would now say that very good reproductions in the line method can be produced in this way also, provided the difficulties in the choice of raw collodion are overcome. I have often proved by many experiments

that this process is better than the quick-silver chloride strengthening. I use it in three different solutions; or, rather, I hold three in readiness, but often find it necessary to use only two. Solution No. 1 is the lead strengthening proper, and a sufficient quantity of it is poured into a dish to cover the plate placed therein. The picture becomes transformed, it consists now of ferrocyan-lead and ferrocyan-silver. After the picture is strengthened enough, the negative is taken out, rinsed well, and then it can be seen whether the negative is strengthened enough. In reproductions, solution No. 3 is directly used, and the picture assumes a lilac color. But for pictures containing many delicate half tones, solution No. 2 is recommended to change the picture into blue. After this bath has worked sufficiently, the picture is rinsed and laid in solution No. 3, and by this means the blue is destroyed by the ammoniac contained therein, the picture gradually assumes a rose-violet tint, and all the delicate details are uniformly strengthened. Should the negative not be a rose-violet color, but a dirty yellow tone, then there has been fixing soda in the plate, and this injures the picture. After these plates are dry, they can be copied; or, better, varnished. This is a rapid and excellent process.

Solution No. 2 can be used alone when only a lead strengthening is desired. If solution No. 3 should in course of time lose too much ammoniac by evaporation, more can be added. It is advisable not to leave the solutions open in the dish, and they should be filtered after each using; also, solutions Nos. 1 and 2 should not be left exposed to the sunlight, but kept as far as possible in a dark room, otherwise a chemical change might take place in them. The plates must be washed well after the fixing before they can be strengthened.

In case a precipitate should form on the plates, they should be held under a water jet and the water allowed to run gently over them.

Nos. 1 and 2 often have a sediment, but this is removed by the frequent filtering, and thus the working of the solution is not detracted from.—*Mittheilungen.*

### FACTS AND FANCIES.

A NEW ZEALAND photographer inveigles his patrons into the depths of a long circular in which he explains his "processes." After getting their minds all harrowed up to the plate-drying rack he climaxes thus:

"The next operation is one which demands artistic perception, delicacy of execution, and great care—the negative must be retouched and toned down. The camera is faithful enough in its way, but it is an exaggerator; a natural defect in feature is often glaringly portrayed in the negative; hollows in the face, wrinkles, and so on, show in white patches and lines, and in the print they would be reproduced in horrible black. Freckles, again, are yellow or brown on the original face, but if they were not improved off the face of the negative they would show as spots black as Erebus. A striking example of this is shown in an excellent photograph of a girl who was afflicted with freckles. The print taken from the negative before it was subjected to the manipulative pencil of Mr. —, shows a handsome face sprinkled with black spots as closely as the Milky Way with stars; but after the pencil had remedied the exaggerations of the camera, the freckles had vanished. It is not uncommon for people to say that a photograph flatters the original, and perhaps they are nearer the truth than they imagine. When a man (not to mention a woman) wants his portrait, he wants it as good looking as it can be made consistently with the preservation of the likeness; and an artistic photographer can stipple up a complexion, tone down a redundancy of lip, correct an unfortunate deviation of nasal outline, fill up facial hollows and wrinkles—and all without sacrificing the likeness. This is the artistic branch of the photographic profession. The negative is placed on a little easel with an oval aperture in the centre to admit of the passage of light from behind, and the artist sits down to his delicate work armed with pencils of phenomenal sharpness of point, and spends perhaps a couple of hours over a single negative. When the work is done once, however, it is done for good and all."

From the Philadelphia *Ledger* we have the following

"W. N. Jennings, of Philadelphia, whose work in connection with 'lightning photography' is well known to most photographers, and to members of the Franklin Institute, where the results have been shown, writes the following account of his experiments for the *Ledger*: 'About five years ago my attention was attracted by a large painting representing a storm scene, in which a streak of lightning was depicted as a sharply defined zig-zag line, and I was led to wonder how the artist managed to hold Jove's autograph long enough on the retina of his eye to enable his hand to trace its beginning and ending. Being an amateur photographer, with exalted ideas of the possibilities of the camera, it occurred to me to try and persuade Jove to write his own autograph on a sensitive photographic plate. In the summer of 1883, I took up the difficult subject in earnest. With no previous worker's experience to guide me, it was necessary to grope in the dark. At the outset it was apparent that photographs of lightning could not be obtained during daylight, and that the electric discharge would outstrip the speed of the quickest instantaneous shutter. The work must be done at night, and all that was necessary was to load the camera with an instantaneous plate, and during an electric display uncup the lens and take the chance of securing the lightning's image on the surface of the photographic plate. The feat seemed easy enough and success certain; but it meant the loss of many a night's sleep, and frequent drenching through and through with rain before the desired end was reached.

"After some thirty or forty attempts to obtain a photograph of lightning, and having only secured one small streak, about half an inch long on the plate, I was about becoming discouraged, when in the fall of 1884, I happened to see hung in an obscure corner of the Franklin Institute Electrical Exhibition a picture bearing the legend: 'Photograph of Lightning.' It was not a silver print, nor a direct print from the original negative, but appeared to have been considerably enlarged, and the lightning streak was represented as a blurred wavy

line. There was no name attached to the picture, and I have been unable to find the date of the exposure or the name of the artist, but this fact caused me to take up the subject again with greater interest, and after another fifty attempts was fortunate enough to lure into my camera box an extremely interesting image of lightning in the shape of a long wavy line, extending from a point in the sky and extending downward at an angle of about forty-five degrees, growing gradually thicker toward its base, and having several small branches along its length. The windows and roofs of adjacent houses, and a number of trees in the distance were plainly shown on the negative, as well as a thin horizontal streak of lightning near the top of the picture.

"This fortunate capture after so many failures, was of particular interest to me, as I had long held the opinion that the path of the lightning's discharge is not a sharp angular zig-zag one, but a wavy line, as in the case of a discharge which takes place between the poles of a frictional electric machine. To make this theory bear itself out I afterward made a series of photographs of a Holtz machine spark, and was pleased to find that they and the photograph of lightning were identical in their wavy line character. Since that time, whenever there has been a severe thunder storm occurring during the night, my little camera has had its one eye looking in that direction, with more or less success; its latest successful attempt occurring on the night of June 1, 1887, when I was fortunate enough to obtain a photograph of a strange horizontal streak of lightning, which occurred between two cloud banks, and the photograph has the appearance of a large river with numerous tributaries. There has been considerable discussion as to the length of time it takes for a discharge of lightning to take place, and I am just now at work on a little piece of apparatus, which will probably make the camera settle the question as to whether the discharge is really instantaneous or takes appreciable time to fly from one point to another."

THE following notice appeared in the Philadelphia *Press* in 1865 (twenty-three

years ago). It will interest some of our veterans to repeat it.

"It may not be generally known that the best photographic journal in the United States is published in Philadelphia. A little more than three years ago, Mr. E. L. Wilson, then cashier and bookkeeper to Mr. F. Gutekunst, the well-known photographer in Arch Street, got the idea of giving Philadelphia the benefit of a periodical exclusively devoted to the great science which French Daguerre and English Fox Talbot simultaneously discovered—one using the polished surface of plated copper, made highly sensitive by chemical "means and appliances" to boot, and the other using prepared paper, to receive and record the images cast upon it by the action of light, manipulated, as it were in a camera. Joining with Mr. Benerman, who is in the great printing establishment of Sherman & Co., he established the PHILADELPHIA PHOTOGRAPHER; or Monthly Journal, devoted to Photography. The size is large octavo, thirty-two pages in each number; it is finely printed upon excellent sized paper; and, unlike its competitors in New York and elsewhere, its letter-press is wholly original—among its announced contributors for 1866 are Prof. Henry Morton, the great chemist, and his father, the Rev. H. J. Morton; Dr. M. Carey Lea, Coleman Sellers, Dr. Charles F. Himes, the editors of the three leading photographic journals in London and Germany, and many amateur and practical photographers. Mr. Wilson (Wilson & Hood, 626 Arch Street) has edited it from the first. Every new discovery in photography is explained and discussed in this monthly, and practical men, who, but for it, would never have put pen to paper, here relate their experiences and describe their experiments. One valuable feature is the giving, in each number, a fine photograph—some of these have been produced by negatives procured in Berlin. In the January number, which commences Vol. III., is given a charming full-length portrait of a lady, the new cabinet size, executed by Mr. William Notman, of Montreal. The dozen photographs given, this way, in the year, are well worth the subscription to the work. Benerman & Wilson have also

just published a second volume of *Photographic Mosaics*; an annual record of photographic progress, edited by M. Carey Lea and Edward L. Wilson. It is eminently practical."

TO THE POINT.—A renewing subscriber writes kindly thus: "You are quite right not wishing to send your costly journal to anyone without satisfactory assurances of payment, and I can see how, to stop sending, or to continue, where subscriptions have expired, may alike be the source of annoyance. For my own part, I would prefer to have my journals (of which I take a number) *stopped* when the time paid for expires. The stoppage would be likely to remind me that the subscription is due, and leave me at liberty to renew or not. I think there are many like myself who cannot keep the dates in mind, and would be thankful to have their attention called to them by the publishers. Would it not be practicable and profitable to you to send a postal or circular letter when the time for renewal *approaches*, simply stating to the effect that "your subscription to — will expire —;" and giving terms of renewals. And then make the standing rule to stop the journal unless subscription is received? Such a rule would please me. Subscription will be overlooked unless in some way a busy man's attention is called to the fact that the time for renewal has come.

Very truly yours,

L. R. C.

[We have tried every way suggested, and are now going through the process for the twenty-fifth time.—ED. P. P.]

## A QUARTER CENTURY IN PHOTOGRAPHY.

BY LUKE SHARP

(In *The Detroit Free Press*, December 25, 1887).

*Traveller, Writer, and Photographer—Great Improvements in a Wonderful Art—How Gelatine Changed Everything—The Very Latest Invention.*

AMONG the writers who have recently risen to prominence in the magazines is Edward L. Wilson, of New York. The *Century* was the first to introduce him to the

magazine reading public, and his initial paper was on "Petra," that mysterious city hewn out of the solid rock, into whose deserted streets very few travelers have been permitted to penetrate. Cook, of tourist fame, who "personally conducted" the British army up the Nile, would not undertake to "personally conduct" Dr. Wilson to Petra and guarantee his safe return. So Dr. Wilson had to "personally conduct" himself, and he was, I believe, the first person that ever dared to focus a camera in that wonderful city. Since then the *Century* contained his paper on "Pharoah," and the December number of the same magazine gives the first place to his article on the "Sea of Galilee." All of these interesting papers have been superbly illustrated from photographs taken by the author. Shortly the new Scribner's magazine is going to publish a couple of papers by this author and traveler on recent researches in Egypt. So the Doctor's chances of being one of the best known of our magazine writers seem to be very good.

To any one unacquainted with photography it would seem that the demand for Mr. Wilson's articles has been something of very sudden growth, but to any one who is interested in the literature of the science of light, the recent magazine contributor is an old friend. For twenty-five years he has edited and published a magazine of his own, and in that time he has written thousands of articles and published dozens of books that are to-day the text-books of photography. His apprenticeship has, therefore, been long, and his more recent fame well earned. Up to the present time Wilson's *Photographics* has been the standard work on that art, and if it is ever to be displaced it is by the Doctor becoming his own competitor in his book just published, entitled *A Quarter Century in Photography*. This is a large volume, profusely illustrated, and containing over half a thousand pages. I have spent what spare time I had in the last fortnight in reading it, and this work will form the text of my disjointed sermon of to-day.

If photography were not so common it would be justly regarded as the most wonderful art of the present day. It contains all the elements of a black art, and if a per-

son could have juggled with it a few centuries ago, nothing would have saved him from the stake. Its dark-room is more mysterious than the witch's kitchen which Mr. Irving shows us. No stranger to the art who for the first time witnesses an incantation scene in this gloomy chamber can fail to be deeply impressed. The only light in the dungeon is the danger signal. A railway man on entering would instinctively try to whistle on the brakes and reverse his engine. This awful illuminator throws on the face of even the most innocent and irreproachable photographer a blood-red Me-phistophelian hue that for the time transforms his appearance into that of a demon of the very lowest lower regions. As he moves about he appears and disappears, now into and now out of this lurid glow in a way that is calculated to strike terror into the stoutest heart. He places in a black, shallow tray a glass plate covered with a whitish opaque substance. There is not a trace of anything else on it. Then he pours over it the magic fluid, muttering, perhaps, "Heigh, presto, pro-sodorific ferrous oxalate hypo sulphuric, change!" and instantly from out the glass plate appears in dim, ghostly fashion the faint outlines of a scene thousands of miles away, perhaps, or a face that may be the face of the dead. If a ray of pure white light enters the room the spectre picture would vanish as quickly as the ghost of the Danish king when he smelt the morning air.

Such is the awful art that the *Quarter Century in Photography* tells about. Many great names have been linked with photography. When it is remembered that Mr. Wedgewood, Sir Humphrey Davy, Sir John Herschel, and myself, have each experimented with photography, it will be easily understood that it is an interesting occupation. I may add that neither of us discovered anything worth remembering, and that all the great inventions pertaining to photography were worked out by men previously unknown in the scientific world. Twenty-five years ago, the work of photographing was a very cumbersome business. Each man had to prepare his own plates. He spent most of his leisure time cleaning the glass plates, and when anybody came in

to be "took," he spread collodion over the glass, waited until it was partly dry, and then put it in a bath of silver solution; and all this time the sitter was practising the art of looking pleasant at a huge and clumsy camera. Then the picture-taking took an appalling length of time. The sitter generally thought it was a slice out of eternity. Many a man's hair turned gray while his picture was being taken, a quarter of a century ago.

A few years ago there stepped quietly into the ring the John L. Sullivan of photography. Few were prepared for the stir he was soon going to make. His name was Gelatine. He knocked out the Collodion Plate the first round, and then looked around for something else to do. He is at present engaged in a fight with the Wood Engraver, and no one was more surprised than the old "Woodpecker" at being suddenly called on to defend himself. Many of the pictures you have seen in the magazines—many that are in recently published books and, alas, all that you notice in the columns of the newspapers—are due to Mr. Gelatine. Gelatine combined with certain salts of silver was put on glass, and the dried plates so made were good for almost any length of time. Instead of a cumbersome chemist's shop, the traveling photographer took with him a few boxes of dry plates. Gelatine has much to answer for. He it was who introduced to us the amateur photographer, to whom nothing is sacred. If it were not for Gelatine I should not be writing this to-day. Whatever may be said against the old wet-plate process, it ought to be remembered that it was too cumbersome and complex for every Tom, Dick, and Harry to work at.

This is how Gelatine punished the unfortunate Wood Engraver, who was sitting quietly at his bench, never expecting a blow. Gelatine is a tremendous swell. If it is put in water it swells up at an awful rate. Water affects it more than it does John L. Sullivan. Now if gelatine is mixed with certain chemicals and is exposed to the light it will not swell, while if kept in the dark it will swell if it be put in water. Supposing you have a glass plate covered with the chemicalized gelatine. You keep it in the dark. Now

if you take another glass plate of the same size and write your name on it in any opaque ink, and then when it dries place this plate on plain glass on the gelatinized glass with the writing and the gelatine next each other, and let the rays of the sun shine through the plain glass on the other, and place the gelatine glass in a tray of water, this is what will happen: The ink not having allowed the gelatine under it to be touched with the rays of light the gelatine under the tracing will swell, and in a short time there is your name in raised letters on the gelatine plate, but reversed, of course. Now over this you flow some plaster of Paris, and when that is set and lifted off you pour in type metal, and there you are. You have a printing block that will give a facsimile of your writing. It was in this way that the Mark Twain letter which was printed in this column some weeks since was produced, only in that case the letter instead of being written on the glass was photographed on it, and was, therefore, an exact copy of every hair line.

The method I have roughly described is the basis of all "process blocks," as they are called, and when you see some of them on the pages of the magazines you would think they were the work of the most skillful wood engraver, and the magazine takes care that you don't think anything else, although the cost as compared even with the roughest wood-work, is a mere trifle. The process I have sketched is easily done, and I have made printing blocks myself by that method, but if you want to know how to do it you will have to get the particulars from some book like that of Dr. Wilson's. It would take too much space to tell about it here. But gelatine, not satisfied with knocking the underpinning from the wood engraver, takes a shy at the artist as well. The artist, however, has not so much to fear as the woodman. Here is what can be done. A photograph is taken of a building, for instance. A careful boy can go over the lines of the photograph with India ink. The photograph is then put in a certain chemical, and in a short time all that was photographed disappears and leaves white paper instead. But the lines done in India ink remain. It is a picture of the building in

black lines on a white ground. This is photographed, and the negative obtained is placed over the gelatine plate, as the writing was in the former instance, and thus you get an accurate printing block without the intervention of the artist.

The more people get the more they want. It would seem that the amateur photographer could desire nothing better than the ordinary dry plates for a tour. But he began to think them cumbersome, and they certainly were heavy and always liable to breakage. Then came from Rochester an invention that was as great an advance on the dry plate as the dry plate was over the wet. This was the paper negative and the Eastman-Walker roll holder, inventions that have already brought fortunes to the originators. A roll of sensitized paper that will make from twenty-four to forty-eight negatives is compactly placed in a roll holder, and the whole weight and space taken up is less than that required for a couple of glass holders. The tourist is in no danger of breaking his negative, and whenever one picture is taken he turns an arrangement and a new negative is ready. The very latest device to which Mr. Wilson's book brings us at the end of his *Quarter Century*, is the American stripping film. This is a gelatine film sensitized on a paper support. After the picture is developed, the paper and film are placed in hot water, and there they part company. The paper is thrown away, and the film is kept to print from. It is flexible and unbreakable. It occupies practically no space at all, and it is so transparent that it prints even quicker than the ordinary glass plate. What the next improvement will be no one can tell. It will very likely be a camera that will travel alone, take pictures by itself, and send home the proofs to its owner.

### EXPERIENCE A DEAR SCHOOL.

BY THOMAS PRAY, JR.,  
Boston, Mass.

THE busy men, who are working on photography for "bread and butter," or the other fellows, who make it a pastime or an auxiliary in their scientific work, have an experience that is simply invaluable. Many

of them who have learned chemistry, or that there is such a branch as chemistry, have also learned that it would, if they were capable of understanding it, teach them that formulæ are valuable only when based upon some knowledge of the articles employed, as well as the purpose to which they are to be put, and that they are especially governed much by what they are to come in contact with, and by the results to be brought about.

This may be reiteration upon my part. If so, facts will always bear repetition, especially if violations of first principles are frequent in the especial line to which our attention is directed—i. e., in the line of photographic work.

Three years ago or more an article of mine called attention to the danger of using hyposulphite of soda in either of two ways, viz., when a discolored solution, from too much use, or in solution with alum. Since that time, frequent articles have attracted my notice in close and extended reading, where one or the other processes were recommended. The first is slouchy and is certain to carry the elements of ruin into the gelatine film, to slowly but certainly cause its destruction as time goes by.

A recent letter from one of the best artists in photography in the United States, into whose studio a visit was made early in 1885 and at whose hands the most pleasant courtesies were received by me, says: "You will remember your refusal to allow your negatives to go into my hypo-alum bath, and our chat over the matter; also the 8 x 10 negatives which you developed for me with your soda developer while in my studio, next day. Well, lately I had an order for some reprints. Your negatives were brilliant and crisp, mine, dirty yellow, and very bad, yet they were all out of the same box of O's plates, and the numbers and the registers agreed. A month later I adopted your method of developing and treatment and since this mishap have looked over hundreds of negatives with no such result since the two solutions have been used. I am sorry to lose my negatives, but I must thank you for saving me thousands since that time, perhaps." My friend is a professional and a man of national reputation.

The moral would seem to be quite too pointed for question among reasoning people or those somewhat familiar with the laws of chemistry and chemical action and reaction, but it may be well to interject the suggestion that lack of knowledge in this line does not mitigate the keenness of the disappointment when the unlucky one finds his negatives ruined.

Some time ago, in one of my runs in the South, another studio was visited and the dark room most courteously and unreservedly put at my service. In my developing the hypo solution was asked for, and a muddy, discolored solution in a big dish was shown me. It was declined with thanks, and an explanation followed. Some hot water and hypo were made into a new solution, and a lump of ice, put all at work in thirty minutes; after the work the artist and I had a long chat in his home, and the subject was fully discussed. He shortly abandoned his slouchy practice, and recently writes that "Experience is a dear school," and he is one of the fools, etc.. He gets cleaner negatives now, with much less cloudiness, cleaner prints, and most decidedly better chemical work by using his hypo only until it commences to color. He finds that hypo at six cents per pound does not cost much per negative for cabinet or 4 x 4, and everyone that goes in properly developed comes out clear and clean, and stays so *two years sure*.

Another point is the one of semi-monthly recurrence—developers. It has gone forth as pretty safe practice to use the developer recommended by the plate maker. Experience is quite as safe as empirical formula, and when such men as Dr. Janeway, U. S. A., and Prof. H. J. Newton, have said it over and over again, written it, and had it printed, that certain things were *not* possible, and certain others *were* prejudicial, I wonder that the mass of professionals do not either take the PHILADELPHIA PHOTOGRAPHER or some of its cheaper competitors. But many of them hardly ever, if ever, *read anything*.

Dr. Janeway, before my own withdrawal from the Society of Amateur Photographer's of N. Y., prepared an elaborate and useful table of the solubility of many of the chemicals so frequently employed in pho-

tography. Lately several formulas have been sent me in which the compound contains "as per formula" from  $2\frac{1}{2}$  to  $4\frac{1}{2}$  times as much of certain chemicals in a given number of fluid ounces of water as will dissolve in that number of ounces of water, hot or cold. Query, how can a man or woman, amateur or professional, use the plate maker's formula (with success)? Again, the stockdealers and chemists (?) frequently add or take from some formula materially. Within a week such an instance has come under my eye, where some person had added "ammonium bromide" in excess to a bi-chloride of mercury intensifier! No person of good sense, or the least pretension to chemical knowledge, could have made up such a mess.

And yet such matters come constantly to my attention. The limit of ignorance, assumption, and cupidity seems not to have been reached when some mixture of sulphurous acid and pyro is sold as developer, or some pyro and other ingredients in solution; when pyro dry has been found almost, if not absolutely, indispensable unless where the solution was made in the morning for use during the day. The same stricture applies to some of the wonderful soda, potash, or alkali compounds sold, in which reactions take place to make them practically worthless. And this is saying nothing of a fifty cent solution that would cost six to ten cents if made at home. There is much more pleasure in knowing how to make your own and then doing the whole thing. (*Get Quarter Century*.) Absolute cleanliness and painstaking are quite as essential to success in photographic operations as good plates and prints are.

The new year and good resolves are synonymous. We ought all to know more, if we profit by observation, and if not then we are relegated to that very extended fellowship, whose motto would seem to be "Experience is a dear school."

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## NOTES FROM LONDON.

BY T. C. HEPWORTH, F.C.S.

A FRIEND was showing me the other day a most interesting memorial of bygone times in the form of a number of beautifully hand-

painted pictures for the lantern. They were executed about thirty years ago, when many good artists devoted their attention to this branch of work. The colors are as fresh as when first laid on, and the amount of delicate detail contained within the three inch boundary line is simply marvellous, and can only be outdone by the still more elaborate work of the photographic picture. These hand-paintings were soon knocked out of existence directly it became possible to produce a transparent positive on glass, at a fraction of their cost. But at the same time one regrets to see any branch of art displaced by something newer, although, of course, in the march of progress, such things must be. With the same feelings of regret I often look upon certain miniatures on ivory of persons whom I never saw, but which have come down to me from long past generations. How beautiful is this work I think, and what a pity it is that no such pictures are painted now. The photographic portrait has done the same for them as the transparency has done for the glass paintings.

The adoption of the photographic transparency for the lantern puts me in mind of the great advance which has been recently made in this class of work, especially by amateurs. A few years back, a good lantern slide was an exceptional thing. Some amateurs tried the wet process, and succeeded to a certain extent, but their failures with gelatine plates were innumerable. Even those who could take first-rate negatives, completely failed when they ventured with the same plate to get a transparency. They could not get that clear glass in the lights, which is an essential part of a good lantern slide. But now things are different. Makers of plates have recognized the need, and many of them are now supplying special plates for transparency work, which give first-rate results. These plates are slow in action, but rich in silver, and work with a certainty which leaves little to be desired. It is worthy of notice, too, that a pleasing tone is gained in development, and that no further process, save fixing and washing, is necessary.

Another matter which is just now interesting those who are engaged in lantern work, is the supply of cheap oxygen. This can now be purchased in London at three pence

per foot, less than half the price formerly asked for it. The reform is due to the establishment of Brins's Oxygen Company, which has been formed to produce the gas direct from the atmosphere. I have heard that a process of the same nature has been worked for some time in America, so that possibly this may be no new thing to you, but it is certainly a welcome novelty to us. It will, I should think, make a sensible difference to the market value of potassic chlorate, which has hitherto been almost the sole source of the oxygen used for the lime light. I was not aware until last week of the enormous quantity of this salt which is consumed in this country for that purpose. One of the largest dealers told me then that his firm sold one hundred tons of it every year, and that he believed that it was almost solely used for the production of oxygen.

When are we to have the electric light for the lantern? It has been tried several times over here with varying success. The last occasion was during the exhibition of the Photographic Society of Great Britain, when regular lantern evenings were held. The light was produced by the aid of Schans Scieff's single liquid battery, a form of apparatus which I think, from what I have seen of it, has a good future before it. I hope to experiment with this battery and a new form of electric arc light shortly, and will let you know the result.

An exhibition of photographs and photographic apparatus is shortly to be opened at the Crystal Palace, Sydenham, which is sure to attract crowds of visitors. It is to be hoped that this will be the case, for the palace funds have long been at low-water mark, especially since South Kensington opened its series of colossal exhibitions, and drew all sightseers within its net.

Mr. W. E. Woodbury, son of the Woodbury, has, your readers will be interested to know, opened here a store for the supply of photographic apparatus. I trust that he may be successful. The business seems to be a very profitable one, but like all businesses in these degenerate days, has to contend with much competition.

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Don't fail to secure a copy of *Mosaics* at once.

## SOCIETY GOSSIP.

On the 3d inst. the amateur photographers of Lynn, Mass., met and formed an organization to be known as the "Lynn Camera Club," with officers as follows:

President, W. H. Drew; Secretary, O. T. Dewhurst; Executive Committee, Messrs. Hoyt, Bachelder, and O. T. Dewhurst.

With a membership of twenty-five or thirty there is no reason why photography should decline in Lynn.

We have been fortunate enough to secure an old gallery in the centre of the city, which furnishes us with an operating-room twenty-eight feet square, and a dark-room fourteen feet square—allowing ample room to move round.

As our idea is to exchange greetings, etc., with other kindred clubs throughout the States, a notice by you would materially assist, and would be duly appreciated by all our members.

Yours, sincerely,

O. T. DEWHURST,  
Secretary.

COURSE of lectures of the Camera Club, 21 Bedford St., Covent Garden, London, W. C., England.

This systematic course of free lessons, lectures, and demonstrations has been arranged with a view to the friendly assistance of those members who have never taken advantage of any connected course of instruction or reading; and also as an additional attraction to the club.

Photography has in the last few years attained a popularity which can only be described as phenomenal. It is practised as an enthusiastic hobby by a daily increasing number of amateurs. Many who have recently started, or who are starting, would find great benefit and advantage from some systematic instruction in the use of their photographic apparatus, and in the treatment of plates and prints, and in this view the committee of the club has felt that it would be very advisable to extend a helping hand to any members who may desire to gain such information in a thorough, and, at the same time, a comfortable manner.

The course will be sufficiently elementary for any member commencing photography, but it is hoped that it will also prove interesting and useful to some who are more experienced. These gatherings will be purely class meetings, and will not intrench on Thursday evening work, which frequently includes discussions of subjects too advanced, abstruse or intricate for a beginner in photography.

In connection with the general elementary course, particular subjects will receive extra demonstrations and lessons. These will be given by members of the club who have devoted themselves specially to the subject to be explained.

Independently of these lessons, a retouching class will, later on, be formed, and a competent instructor engaged.

*Syllabus.*

Lecturer and demonstrator, Mr. Lyonel Clark.

I. Light with illustrative experiments, by means of the oxyhydrogen lantern.

II. Optics, as relating to photography—illustrated.

III. Lenses. Directions for selecting lenses. Characteristics of the several types of lenses, etc.

IV. Cameras. The different kinds of cameras. The movements of the camera. Sliding fronts. Swing-backs. Focussing.

V. Other photographic apparatus. Tripods. Double-backs. Shutters. View meters. Finders, etc.

VI. Exposure. The use of the lens stops. Actinometers. Photometers.

VII. Development of plates and films. Methods of development. Treatment of under- and overexposed negatives.

VIII. Preparing the negative for printing. Reduction and intensification, local and general.

IX. Printing methods. Qualities of negatives suitable for special printing methods. Vignetting. Double printing. Silver and gelatine chloride paper printing. Toning and fixing.

Enlarging, reducing, and copying.

These lessons will be illustrated by the use of the optical lantern and the limelight, and by apparatus where required.

*Special Lessons and Demonstrations.*

Platinotype printing, Mr. W. Willis.  
Carbon printing, Mr. C. F. W. Sage.  
Lantern slides, wet collodion, Mr. J. Gale.  
Lantern slides, gelatine dry plates, Mr. G. Davison.

Micro-photography, Mr. A. Pringle.  
Ortho-chromatic photography, Mr. W. Hyslop.

Art in photography.—A few directions as to composition and pictorial effect in photography, Mr. G. Davison.

Elementary photographic chemistry.

Retouching class.—It is proposed also to form a special class for retouching lessons, to be given by a competent instructor.

We publish the above from the programme of the Camera Club, to show our appreciation and as suggestive matter for the consideration of the Executive Committee of the P. A. of A.

A SPECIAL despatch from Washington says: Amateur photography has taken a strong hold upon the young people of both sexes of this city, and the small portable outfit, consisting of a boxed camera and folding tripod, can be seen on almost every open square. The public buildings and equestrian statues are in great favor among amateurs seeking subjects, the Capitol and the White House ranking first in point of attractiveness. Heretofore the majority of these young people in search of views have been content to photograph the Executive Mansion from the opposite side of Pennsylvania avenue. A few days ago, however, an adventurous young knight of the camera carried his machine into the grounds and set it up on the lawn before the *porte cochere*. He had just trained it upon the front of the mansion and stood with head enveloped in his focus-cloth, when an attaché of the White House made his appearance, and seizing the entire outfit, ordered the trespasser off the premises. Expostulation availed the ambitious photographer nothing.

The instrument was confiscated as contraband property, and sent to Col. Wilson, Superintendent of Public Buildings and Grounds. The officer explained, "You will have to see him." To Col. Wilson the pho-

tographer went. The Colonel is a clever, good-natured gentleman, and promptly restored the property, but read the young man a long lecture on the enormity of the offence of photographing public buildings in general and the White House in particular.

"My dear boy," said the Colonel, "if we took no steps to prevent it there would be a double file of amateur photographers encircling the White House from morning until night, every one of them ready to take a snap shot at Mrs. Cleveland should she venture to show her head. We really can't allow it, you know." The amateur manipulator of the dry plate thanked the Colonel effusively for the restoration of his outfit, and will hardly risk it within the enclosure, again. An attaché of the White House said to the correspondent in reference to this matter:

"You can have no idea of how busy we were kept in chasing off itinerant photographers that used to infest the house and grounds. They would come by the dozen at about the hour Mrs. Cleveland usually went driving, and stand about the steps with detective cameras to catch her as she passed. Some of the cameras looked like little handbags, and others were small boxes carried under the coat. However disguised we soon got to know them, and hustled their owners out in short order."

At the twenty-sixth annual meeting of the Photographic Society of Philadelphia, Treasurer S. Fisher Corlies, who has filled that office ever since the organization of the society, reported that the receipts of the year had been \$1376.40, including the balance from the year preceding, and the expenditures, \$904.74. Joseph H. Burroughs presented the report of the Executive Committee, by which it appeared that the society now has a membership of 152. A new and more commodious room in the new building, 1307 Arch street, has been rented, and is expected to be occupied in about six weeks. Reference was made to the joint exhibition to be held in Boston this year, of the three societies, the Boston Camera Club, the Society of Amateur Photographers of New York, and the Photographic Society of Philadelphia.

Officers were elected as follows: President, Frederick Graff; Vice-Presidents, J. G. Bullock, Joseph H. Burroughs; Secretary, Robert S. Redfield; Treasurer, S. Fisher Corlies. Executive Committee, Dr. Herbert M. Howe, Dr. Ellerslie Wallace, and Wm. A. Drippe.

Mr. Graff read a report in which he reviewed briefly the progress made in photographic science during the past year.

John Carbutt referred to a recent statement by President Newton, of the Photographic Section of the American Institute, to the effect that any plate or process making a good negative would make a good lantern slide, and that rapid plates were preferable to slow ones. He said his experience was very different from this, and his views were upheld by Messrs. Fasset, Wallace, and others.

After the adjournment slides were shown from negatives made by several of the members, including some by Mr. Bell, toned with bichloride of mercury and gold.

THE work of preparation for the triplex exhibition at Boston is moving on famously.

At the last meeting of the New Orleans Camera Club Mr. P. E. Carriere presented the club with a question box, made in the shape of a camera, and mounted on a stand. The box is the handiwork of Mr. Carriere, who is one of the most active members of the club. Hereafter members will write questions on slips of paper and deposit them in the box, and they will be taken out at each meeting and discussed.

The secretary reported that the membership of the club had grown in one year from thirteen to thirty-five, with seven honorary and two corresponding members.

Treasurer Harry T. Howard reported a balance of \$55 98 in the treasury, without any liabilities. Recently the club has built a dark-room at considerable expense, which has been paid for.

THE Brooklyn Camera Club was formed early in January. Its rooms are at 71 Lincoln Place, and its prospects are fine. The recent lantern exhibition was very creditable. Mr. W. F. Miller is temporary chairman.

## THE WORLD'S PHOTOGRAPHY FOCUSSED.

A COSTLY album was presented to the Emperor Francis Joseph, of Austria, on his fortieth anniversary as ruler (December 2, 1887), by all the relatives of the Hapsburger House. It was set richly with precious stones. It contained the life-size photographs of the nobles.

ONE of the German papers claims for Philip Hoffmeister the priority in the discovery of our art. In an autobiography of Hoffmeister's, it appears that he made his discovery in 1833, while Daguerre did not astonish the world until 1839. Mr. Hoffmeister says he used a solution of pure cochineal (kochenille) upon unsalted unsized paper and placed this in the camera obscura. In a short time, the light places in the cochineal were consumed by the sun, and thus a picture was produced.

This discovery was mentioned in the *Allg. Anzeiger der Deutschen* (1833), and Philip Hoffmeister spoken of as the "Felix henristes," or happy inventor. Now it remains to be proven whether this happy inventor has any claim, and how much to the art which has to-day reached such perfection.

PHOTOXYLINUM is the name given to collodion-wool produced by a new process, and which will dissolve easily in ether-alcohol. The fact is that this name is simply applied to the excellent material long-known as Mann's collodion-wool, which has been manufactured for many years past in Germany.

At a meeting of the Glasgow Photographic Association, Mr. Lang spoke favorably of the investigations on light made by the late Robert Hunt, of London, and of some experiments of Dr. M. Carey Lea, of Philadelphia. Among these last, the speaker made special mention of the following fact, which Mr. Lea has called "Image Transference."

A paper is coated with a silver salt, other than a haloid salt, with tartarate of silver, for example. After exposure it is treated in the dark-room, with chlorhydric or brom-

hydric acid, then with diluted nitric acid, and, finally, with a washing in water. If now a developer is applied, the action of the light on the tartarate of silver becomes manifest.

This recalls to our mind an old operation of Niepce de Saint Victor with tartaric acid alone. The paper covered with this acid was rolled up and introduced into an opaque tube; the tube was exposed to the light so that the rays might penetrate into its interior; by applying afterward, in obscurity, the orifice of the tube on sensitized paper, a circular image of this last was obtained.

At the same meeting, Mrs. Baden Pritchard, the widow of the editor-in-chief of *Photographic News*, caused to be shown the first image obtained by Niepce, the elder, in 1867, by the action of light on a sensitized surface, as well as the manuscript of the paper that Niepce had read on this subject before the Royal Society of London. After having remained for a long time in possession of the Secretary of the said society (to whom Niepce had presented them), these interesting objects were finally exposed for sale, and purchased by the late Mr. Baden Pritchard.—*Moniteur*.

EXPLOSION OF A SAMPLE OF ADULTERATED ETHER.—We read in a chemical journal that Mr. Schar having made use, in one of his experiments, of a sample of ether which had been kept for many years in a closed bottle, this product made a violent explosion at the time it was being evaporated in a platina capsule placed on a moderately heated iron plate. This is explained by the fact that the ether in question gave, when analyzed, five per cent. of oxygenated water (byoxyd of hydrogen), as well as acetic and formic acids. It had been used for extracting grease. This ether may have become decomposed, more or less, by the action of the light.—*Moniteur*.

AMONG other subjects of interest discussed at a late meeting of "The Society for the Advance of Photography," in Berlin, was photography in St. Petersburg. A number of excellent pictures representing priests, Russian dignitaries, actors in their character-roles—done by Schapiro—show most ex-

pressively the Russian national type. Some heliogravures, by Scamoni of the same country, received also from the gathering their full mead of praise. Mr. Runge, as engraver, remarked that several of the heliogravures resembled the original prints so faithfully that even a connoisseur could be deceived in them.

## PERTAINING TO THE



DEAR SIR: In a recent article I referred to the importance of founding a system for ascertaining and judging the merits of photographic productions exhibited at the annual conventions. This is intended to echo a like sentiment and offer a few suggestions with explanations. Photography, like oil painting, is an excellent medium for the expression of art feeling, and is often used for that purpose. After honoring photography by introducing art into it this art certainly deserves a broader and more *publicly understood* method of judgment than that which is guided by *private theories* and opinions, however honorably they may be intended. Most of the principal cities will be represented in the competition at Minneapolis, and competitors may object to their business rivals as judges, but the man from the one horse town "that has no rivals at all, can get there just the same," and like anyone else will need a system to regulate his opinions, and nothing stronger than water to regulate his system.

I am pleased to submit here a system under three headings, which will cover the important points in art and science photography. The first will be called *conception*, that from which the picture gets its nature, name, and ideality. The second will be called *composition*, that which material-

izes, proves, and treats the conception. The third will be called *execution*, that which shows the methods, manner, or technique of the artist in manipulation.

*Rule for Criticism.*—The opinions of the judges may be expressed with numbers and according to the following rules: Under the heading of conception, its nature should be criticised and judgment rendered according to the quality. Under composition, its relation and duties to the conception may be criticised. This may constitute the effects in light and shade, the arrangement and posing of forms, lines, values, contrasts, etc., which represent the appearance and expression of the nature intended: judgment to be rendered on the general average of these. Under execution the chemical manipulation, the quality of the retouching, printing, etc. Their relation to the conception and the general harmony may be criticised and judgment rendered on average.

In view of securing a comprehensive general average, I suggest that a point in execution be equal in value to a point in composition or conception. The general average may be ascertained by addition. I do not by any means wish to overlook the small photographer who makes plain work, and suggest that special prizes be awarded in any manner that will encourage the business from which he lives, though it is the adherence to art principles that makes successful pictures, and in defence of the highest thing in art production, the conception of the artist. I will say, that it was not the stippled fancy of the retoucher, or mechanism of the printer, or skill of the chemical manipulation that won the first prize at the last Convention for that masterly picture entitled, "Man Know Thy Destiny," by Mr. Landy, but it was the refined nature and high quality of the conception and the adherence to its requirements in treatment. (If photography will be influenced by the theories that govern art, there will be a conception of a golden egg that will hatch from the camera-box little angels of grandeur.)

Should the assertions appear faulty or a little dim, I recommend that they be fixed with a fixing solution that will not stain the fixer's hand.

No presumption is here intended, and no prominence desired that overlooks the good intentions of others. With much reverence for the noble purposes of your journal,

I am, yours truly,

S. D. ROGERS,

Crayon Artist for Strauss,

1245 FRANKLIN AVE., ST. LOUIS.

Local Secretary of P. A. of A.'s report for 1887:

*Disbursements.*

May 24, Bills rendered for sundry expenses, including cost of incorporation, printing 15,000 circulars, tubes, diagrams, etc. . . . .	\$238 10
Postage stamps for 15,000 circulars, in tubes, . . . .	110 00
Aug. 13, P. Daily, cleaning Exposition Building, 6 days . . . .	65 00
P. Muller, decorating stage with ornaments, flowers, etc. . .	25 00
Stienmetz & Eilenberg, use of stage built for Thomas Concert Company . . . .	60 00
Coleman and wife, 6 days in charge of toilet room . .	15 00
Music on day of public admission . . . . .	100 00
Gas bills for every night and two evenings . . . .	93 25
Police from Aug. 5th to 13th .	129 00
E. Moore, carpenter, rent of tables and screens, \$100 00; carpenter work in various parts of building, 150 00 .	250 00
Printing programmes, admission tickets, constitution, etc. .	29 25
H. L. Blakelee, managing sale of tickets, public day . . .	20 00
Andrews & Co., use of desks .	62 50
H. E. Morton, signs inside and out of building, and for journals, etc. . . . .	145 00
Milward Adams, for use of trees decorating hall . . . .	35 00
Watchman in Academy of Sciences, four days . . . .	7 00
W. Leonard, janitor in Art Department (antique statuary) .	8 00
Chicago Arc Light and Power Co., electric light. . . .	14 00
Ford, Johnson & Co., use of chairs . . . . .	17 50
	<hr/>
	\$1335 10

Brought forward . . .	\$1335 10
Aug. 13. C. Brown, removing booths, platforms, etc. . . .	39 00
Advertising, public day—	
Chicago Times, .	\$48 00
Chicago Herald . .	15 75
The Tribune Co. . .	30 50
Inter Ocean . . .	28 00
	122 25
Local Secretary, amount allowed by Ex. Committee .	250 00
Expenses paid help, mailing and folding 15,000 circulars	26 50
Printing letter-heads and envelopes for R. R. Committee	10 00
Cloth for covering screens in Exposition . . . . .	35 00
Laborers, assisting in putting up pictures and repacking .	24 50
Telegrams, \$1.30; for marking dealers' space on floor, \$6 .	7 30
G. Daniels, janitor at Exposition, services looking after and receiving packages before and at Convention .	5 00
Clean towels and screw eyes .	1 75
Freight on American and German exhibits . . . .	11 05
Stationery, \$2.00; expressage, \$3.50 . . . . .	5 50
Packing and shipping pictures	12 50
G. A. Douglass, expenses Railroad Committee, freight, etc.	11 59
Postage stamps for correspondence during the year . .	6 75

\$1992 29

Cr. By cash received from Treasurer 1948 00

Balance . . . \$14 29

## TREASURER'S REPORT

G. M. CARLISLE in account with the Photographers' Association of America:

## Dr.

1887.	
Jan. 1.	To cash balance from 1886 . \$2528 57
" 14.	Received from H. McMichael . 90
Aug. 15.	" " 515 Members, \$2.00 each . 1030 00
" "	" " 366 Members, \$5 00 each . 1830 00
" "	" " H. S. Bellsmith 1453 25
" 16	" " " " 200 00
" "	" " for admission, 25 cents each . 587 25
Sept. 20.	" " from H. S. Bellsmith 231 75
Dec. 27.	" " " " 666 95
	\$8528 67

## CR.

1887.	
Feb. 1.	Paid H. McMichael . . \$53 65
" "	" " D. R. Clark . . . 31 50
" "	" " W. V. Ranger . . . 71 15
" "	" " W. H. Potter . . . 31 45
" "	" " J. Landy . . . 40 00
" 17.	" " Printing and Stationery 69 10
" "	" " G. M. Carlisle . . . 91 50
May 26.	" " C. Gentile, Expense ac't 238 10
June 6.	" " C. Gentile, Expense ac't 110 00
" "	" " P. W. Rounds, badges . 150 00
July 28.	" " W. H. Potter, medals . 905 00
" 30.	" " P. W. Rounds, workmen's badges . . 2 75
Aug. 8.	" " C. Gentile, Expense ac't 100 00
" "	" " H. S. Bellsmith, " " 100 00
" 13.	" " G. L. Pierce, rent of hall 293 62
" "	" " C. Gentile, salary . . 250 00
" "	" " C. Gentile, Expense ac't 600 00
" "	" " J. Landy " . . 42 50
" "	" " W. V. Ranger " . . 86 00
" "	" " H. S. Bellsmith " . . 88 26
" "	" " C. Gentile " . . 650 00
" "	" " H. Carson, stenographer 120 00
" "	" " G. M. Carlisle, Expense 100 00
" "	" " G. Genert, foreign exhibit expense . . 19 43
" "	" " G. M. Carlisle, Expense 11 00
Sept. 15.	" " Jex Bardwell . . . 100 00
" 29.	" " W. H. Potter, Modal ac't 95 00
Dec. 27.	" " H. S. Bellsmith, Expense account . . . 100 90
" "	" " H. S. Bellsmith, 5 per ct. 300 00
" "	" " G. M. Carlisle, 5 per ct. . 300 00
Paid for Type-writing . . .	11 00
" " Express . . . . .	3 55
" " Exchange on five drafts .	1 25
" " Telegraphing . . . . .	1 40
" " Bottle of mucilage and package of large envelopes . .	30
" " Clerk hire, folding, directing, stamping, and mailing 1000 circulars . . . . .	10 00
" " Rubber stamp . . . . .	75
" " Year's postage . . . . .	24 00
	\$5202 61
Cash in hand . . . . .	3326 06
	\$8528 67

## RECAPITULATION.

Received for Initiation and dues .	\$2860 00
" " Floor space . . . . .	2551 95
" " Public admission . . . .	587 25
Total receipts, 1887 . . . .	\$5999 20

Total receipts, 1887 . . .	\$5099 20
Total expenditures, 1887 . . .	5202 61
Net gain, 1887 . . . . .	\$796 59
Cash on Deposit, Dec. 31, 1887 .	2528 57
Received from H. McMichael, balance . . . . .	90
Cash now on deposit . . . . .	\$3326 06

*Editor PHILADELPHIA PHOTOGRAPHER.*

By unanimous vote of the Executive Committee of the Photographers' Association of America, the subject "Hiawatha," has been selected for illustration in making pictures for the Blair Prize Cup competition for the Convention of 1888.

H. S. BELLSMITH,  
Secretary.

## Editor's Table.

Do not be disturbed, although it is true that Mr. LUKE SHARP of the *Detroit Free Press* sets sail for California shortly via the Canada Pacific Railway. He expects to see views equal to and "away ahead of Switzerland." His main-sail will be his Scovill camera, and his top-sail *Quarter Century in Photography*, which, he writes us, "is by all odds the best and most complete work on photography."

THE BARDWELL FUND.—We have forwarded to Mr. Bardwell, for Edward Cope, Esq., \$20; for Albert H. Postel, Esq., \$5. Mr. G. Cramer has forwarded \$50 as his subscription to the fund. Must it end here?

MR. GEO. M. BRETZ the sculptor-photo-artist of Pottsville, Pa., says we give him too much youth. He began photography in 1862 and has read the PHILADELPHIA PHOTOGRAPHER sixteen years.

MR. THERON GEDDES, whom many of our older subscribers will well remember, after being our confidential assistant for a dozen years or more, was forced by ill health to go to Colorado to live. He became an employee of the Denver & Rio Grande Western Railway Co. and gradually arose until he became auditor of the road. We have just received his annual report—a carefully prepared and interesting document.

DR. J. H. HIGGINS of this city has shown us a series of wonderful transparencies from his negatives of passing steamers. Owing to the use of his "finder" the vessels are always in the right place and exquisitely sharp. In one view the spokes of the paddle-wheel show sharply through the tumbling spray.

COLONEL CAV. OTTAVIO BARATTI, Piverone, Italy, who was first editor of *La Camera Oscura*, sends us his usual warm-hearted congratulations and "best wishes for the New Year." None are more valued and reciprocated.

DR. F. V. HAYDEN the well known geologist and explorer, whom Mr. W. H. JACKSON, Denver, accompanied on so many expeditions, died in Philadelphia recently.

*The Art Student in Paris* is a concise little brochure published at forty cents by the Boston Art Student's Association. Any art student or art lover going to Paris would find it invaluable. It states in a business like manner just "how to get along." One following it can scarcely go wrong. It gives a list of the schools, museums, and available collections; notes on studio life; how to live and the cost of living; good advice on general topics and some notes on Munich. Copies may be had of Mr. G. H. BLAIR, Museum of Fine Arts, Boston.

OUR 1888 SOUVENIR.—For the use of our readers and all others interested in photographic literature we have issued a souvenir of rather a novel character. At first sight it looks like a miniature copy of our magazine, for the first cover page is a *fac simile* of the first page of the cover of the first number of the PHILADELPHIA PHOTOGRAPHER, January, 1864. Inside is the "Happy New Year" greeting; a short dissertation on photographic literature in general; some arguments in behalf of the PHILADELPHIA PHOTOGRAPHER in particular; some descriptions of books; excerpts from the writings of famed artists, and our *special offers* for \$10, \$9, \$8, \$7, \$6, \$5, \$4, \$3, \$2, \$1, and \$0, the latter being a

free copy of the souvenir to any one demanding it. We want everybody to have it, to consult it, to keep it, and to be helped by it.

MAGNESIUM light pictures are very plenty now. From Mr. JOHN BROWN, Wheeling, W. Va., we have a very good library group. Who has found the best way to focus for this kind of work?

"RENEW FOR 1888" is the universal command of the major portion of our 1887 subscribers, and all sorts of news and kind words come with the command. Mr. J. R. SCHORB, Yorkville, S. C., says: "I am in my 70th year and have made pictures forty years, but as long as I am at it, I want your journal. May you meet the success you deserve."—Mr. A. J. WHALEN, another veteran in North Adams, Mich., says: "I began before the PHILADELPHIA PHOTOGRAPHER was born, over thirty years ago. I shall ever welcome my best friend the PHILADELPHIA PHOTOGRAPHER, for I don't propose ever to do without it."—Mr. J. L. R. MINOR, Waterville, N. Y., says: "I feel that I must have the PHILADELPHIA PHOTOGRAPHER, as it is many times just what we country photographers need."

NOTES OF THE DAY.—N. C. THAYER & Co., Chicago, issue a free "prize-package" of circulars, bargain-list, and a \$1000 prize offer.—Mr. C. P. McDANNELL, Titusville, Pa., gets round praise for his work, from the local press. He is a good, careful worker.—Mr. ALTHANS, of the Cramer Dry-Plate Works writes: "We believe everybody buys a copy of *Mosaics*." We have a few left.—Dr. A. S. FIELD, of Des Moines, Iowa, and Mr. W. H. WALMSLEY, of Philadelphia, will both instruct us on micro-photography soon.—The "Bardwell Fund" does not grow as it should. Where is "sweet charity?"

BURNET'S *Essays*.—The sale of this splendid work is most gratifying on two accounts: First, hundreds and more photographers are improving from its reading, and, second, we feel guaranteed against loss from our venture.

We append the opinions of two artists and photo experts who have studied and followed Burnet for over twenty years. Such testimony should have its effect upon those who would become better artists.

TENBRIDGE-WELLS, ENG., Dec. 19, 1887.

To EDWARD L. WILSON.

I am glad to see you are publishing reproductions of Burnet's *Essays on Art*. If photog-

raphers really cared for art, which I sometimes doubt, and knew the value of these books, you would sell a large edition. I remember well as a boy, long before I had thought of photography, saving up my pocket money to buy one of these, at that time, expensive books. I chose the one on Composition. That admirable essay, which, with its illustrations, is so clear and convincing, I have always looked upon as the very solid foundation of all I know of art. The other essays I have read and admired but never possessed, for by the time I could afford to buy them they were out of print and difficult to obtain. I strongly recommend these books to all who want to know what is really sound in art.

Respectfully yours,

H. P. ROBINSON,

NEW YORK CITY, Dec. 24, 1887. -

Editor *Photo Times*.

DEAR SIR: The *Practical Essays on Art*, form the safest guide to all students of pictorial arrangement and composition. It is not a book to be placed on the library shelves to be consulted from time to time, but rather one to be studied daily until all the principles it advances have become a part of one's definite knowledge. Read, re-read, analyze, apply, and then return again to this masterly compendium. One's originality is rarely of value unless based on such a substructure of principles as are so ably explained. I would place this in the hands of every amateur and professional artist and photographer in the country, if I could. I hope, since that is impossible, that all students will save their pennies until they can own the book, and thereafter truly own it by becoming thoroughly familiar with its contents. Delight in possession of this sort no money can express.

With best wishes for the success of this *revival*, I remain,

Respectfully yours,

J. WELLS CHAMPNEY.

A REMARKABLE series of 5 x 8 views of excellent quality has been sent us by Mr. A. DIMOCK, Elizabeth, N. J. The subjects are mostly from the wild woods of Colorado, Wyoming, and Florida, and are entirely out of the ordinary run. There are a few, such as "A Colorado Road," "Bad Lands," and "Above Timber Line," which the usual traveller would probably secure, but what are we to say to a man, whose daring and patience enable him to catch a live elk grazing among the undergrowth of a forest, a huge black bear crouched defiant in the jungle, before the camera; a family of unconscious beavers, "working like beavers," building a dam; an alligator caught in his last plunge

with a bullet in his brain; whip-rays; saw fish; devil-fish and porpoises all caught suspended in the air? These are some of the wonders of his interesting collection. There are others of dead game, including deer and a grizzly bear. The latter Mr. Dimock "preferred to take after the danger period" he says. These "out of the ordinary line views" exemplify one of the *useful* functions of the camera, to which we are glad to see our amateur friends apply it, for so much can be added to the general knowledge in that way. Above all these we like the beavers.

THE *British Journal Photographic Almanac* for 1888 is a large wonder, to say the least. It has two added values this year:

A. It comes to its contemporaries and contributors, bound in cloth, and B. our copy is marked "with the editor's compliments." It contains over 700 pages—advertisements and all. The letter press is started by a brief editorial summary of the year's work in Mr. J. TRAILL TAYLOR's best style. He follows with a capital paper on "Enlarging Photographs," and then Prof. C. Piazza Smyth makes some wonderful revelations on "Glass Photographs *vs.* Time"—an article we shall refer to again. The way now being opened, the *flood* of useful articles which follows, is simply immense and overpowering. We cannot discover that a single department of work has been neglected—every one of the needful must find help in this fine compendium. The "Epitome of Progress during 1887," by the editor, begins on page 484 and then twenty pages on the dead run, full of value. "Useful Receipts" bring up the close. But previous to these comes the editor's best work in twelve admirable "essays" devoted to "Young Photographers." And for all this, only 50 cents. Scovill Manufacturing Co., E. & H. T. Anthony & Co., Blair Camera Co., Edward L. Wilson, and all the dealers have it for sale. Order quickly.

MESSRS. HALL & FITZMAURICE, Sydney, N. S. W., have favored us with some interesting views of their wonderful country, mounted on "Christmas Cards." This very pretty custom of English towns and provinces should become popular in America. One of the "Peeps in Sunny New South Wales" is of the harbor with a dozen or more vessels caught under full sail. All are fine.

THE 1888 calendar of the Blair Camera Co. is one of the choicest bits of printing that has come with the new year. We reluctantly took down the fine one sent us by this Company for

1887, to give place to the new one, but the deed is done and we find continual pleasure in the new comer. Thanks.

THE Blair Camera Co. are offering prizes to their patrons, somewhat thus: To every photographer (amateur or professional) sending us a customer for a *Blair outfit* we will give a cash prize in value from one dollar upward according to the amount of purchase. To every one sending us the names and addresses of two or more amateur photographers we will mail, post-paid, a Blair Camera Co's 1888 calendar, which is a beautiful example of the engraver's art. Send for a circular to E. CLAY BLAIR, Manager Chicago branch, 208 State street.

A GRATIFYING LETTER FROM A GROWING MAN.—In all our experience we have never had so many gratifying kindnesses as we have had during the past thirty days. Here is an example:

BUFFALO, N. Y., December 19, 1887.

SIR! I am of age and can speak for myself. For twenty-one years I have been a reader of the PHILADELPHIA PHOTOGRAPHER, and can say "Amen" to all you say in your twenty-fifth greeting to the fraternity. Twenty years ago a photographer said to me, "I am going to quit the PHILADELPHIA PHOTOGRAPHER, there is such a sameness to it."

Yes, there has been a "sameness to it," but it has been like continual digging in the earth to bring forth her treasures. Enclosed you will find check for \$9.00: send me PHILADELPHIA PHOTOGRAPHER for '88 and one copy of Burnet's *Art Essays*.

Hoping to see you strong and vigorous for another quarter of a century, with compliments of the season. Very truly yours,

H. McMICHAEL.

A MAP OF CALIFORNIA.—Mr. SAM C. PARTIDGE, the enterprising stockdealer of San Francisco, sends us a very excellent folding pocket map of California, adding in the kind letter which accompanied it as follows:

"I hope, at some future date, that you will be able to come to this coast and *then* the map will be of some practical service to you." He further says:

"I am sending out to all on this coast interested in photography, a similar map, and will be glad to mail one to any person in the United States or elsewhere, intending to come to the Pacific coast."

If any of our readers happen to know of any person who would like a copy of this map, if they

will send the address to Mr. Partridge he will mail one. It is a pretty souvenir as well as a useful one.

JOHN BURNET'S *Art Essays*.—Photographers are not accustomed to such an elegant book, both in its appearance and contents, as these practical essays on art by John Burnet, which Mr. Wilson has just published for their benefit. The book is reproduced entirely by photo-lithography by the Photogravure Company of New York, from the original set collated by Mr. J. R. Knox in 1866, and which cost the publisher in London in 1873, \$40. The original copies have been extremely rare for many years. Mr. Wilson himself tried twice to publish them in parts, but was obliged to discontinue for want of patronage. Others, too, have tried, but only to fail. We, therefore, bespeak for the pluck and generosity of the publisher in presenting this book, the hearty support of all photographers which he so well deserves. As the editor truly says in his preface, artists have long wished for such a reproduction of the precious art essays by John Burnet. The interests of art have demanded it for a quarter of a century, for the more the Burnet essays are read and understood by the public, the more will the enjoyment of pictures increase; and the public will consequently buy more pictures. No one can read Mr. Burnet's practical hints without knowing better how to look at pictures, and also how to make pictures.

The volume is complete, containing the three parts in full, as follows: Composition; Light and Shade; The Education of the Eye.

It is, moreover, profusely illustrated by diagrams and reproductions of the old Italian, Dutch, and Flemish schools, so that there is nothing lacking in it to make it a complete and sure guide to the photographer who aspires to make pictures as well as photographs.

The book is neatly bound in half cloth, quarto, \$4.00.—*Photographic Times*.

"MONS. NADAR, JR.," writes F. H. W., our Paris correspondent, "is unexceptionally American in his ideas and enterprises—bright and energetic and wants to get all the Americanisms he can." Five years ago we found young Nadar and his splendid father both very congenial spirits. A sample of their work herein soon.

ENOCH ROOT, Esq., the well-known art critic of the Chicago *Times*, and the popular amateur photographer, promises to send us a careful review of the Burnet *Essays*.

THE publication of the Burnet *Essays* has caused us to receive congratulations from all quarters, from artists and art-photographers. This is very gratifying.

SO SAY THE BUYERS GENERALLY.—"I have *Quarter Century* and Wilson's *Photographics* and am much pleased with both. They are a great help to me daily." A. C. S. ANDERSON, Tilton, New Hampshire.

THE Suter lens picture of "A Flying Child" as it has been called, will appear in our next issue, from the studio of President G. CRAMER, St. Louis.

THE Christmas number of the *Photo Times* was a double one and full of attractions. A fine portrait of Mr. C. W. CANFIELD, editor of the *Times Annual* served as the frontispiece and a good photoengraving of the veteran Dr. Chas. Ehrman accompanied his article on his favorite topic, Chautauqua.

WHERE DO THEY ALL Go? We have the following:

SAN FRANCISCO, Dec. 30, 1880.

SIR: The twenty copies *Quarter Century* now on the road, I think will not last long, as it has been selling very rapidly, and I should not be surprised if I should have to order another twenty copies.

If the "Burnet" is what you claim for it, I hope to be able to dispose of many copies of the book.

Very truly yours,

SAM C. PARTRIDGE.

SLEE'S ADHESIVE CARD MOUNTS.—A good deal of correspondence concerning "ready-prepared" adhesive card-mounts has been going on in some of our English contemporaries of late. Several generous people have freely made known their preparations and plans, but none of them work so perfectly as do the Slee's prepared cards, made by the A. M. Collins Manufacturing Co. One cause of failure with amateur methods is, that such cards prepared singly, cannot be treated with the adhesive material up to their edges, and, therefore, the print edges do not adhere. The Slee cards are made in large sheets, the preparation applied and then the small cards cut from the sheet. Then they are "prepared" to the very edge and *stick*, sure.

YENOWINE'S NEWS, Milwaukee, issues an odd and interesting souvenir. Several groups of newsboys are among the portraits with one of the editor-in-chief Mr. Geo. H. YENOWINE. "The Song of the New Year" is enough to inspire any one with life and hope.

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25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

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The *Photo Times* says: "The second edition, rewritten and enlarged, of this popular hand-book for crayon artists, has recently been issued. The first edition of this book being small and published rather as an experiment, many important points on the subject had to be treated briefly. But that edition meeting with such a warm reception and selling so rapidly, the author resolved to enlarge the second edition and give his readers the benefit of the knowledge which he had since gained of new materials and a fuller description of his methods of handling them. The little work treats solely of bust and vignette portraits, and its aim is to assist young artists who are struggling alone beyond the reach of competent teachers. After an introductory confidential chat with the students, we have chapters on the Solar Print, Crayon Materials and How to Prepare them; the Crayon Print, Interlining and Retouching; Hair and Beard; Drapery; Background; and Concluding Remarks."

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**PHOTOGRAPHERS.**—Send for circulars and lists. New ones continually published. GEO. MURPHY,  
2 Bond St., New York.

M. H. ALBEE, scenic artist, studio No. 4, Central st., Marlboro, Mass. Send for samples and prices of backgrounds.

### LEFT-HAND AIR-BRUSH AND EASEL FOR SALE.

—This is a rare opportunity for a left-handed artist, as this style can only be had by special order, and made by hand at an extra expense of fifteen dollars. This instrument has been but little used and has just been put in first-class order by the New York agent of the Air-brush Co. For reduced price apply to

RICHARD H. MORAN,  
245 Center st., New York.

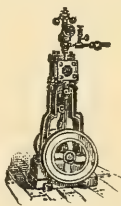
**GRAY'S PERISCOPE.**—This new photographic lens is being very favorably received both in this and the European markets. The *Periscope* is a rectilinear combination, and is most useful for views and architectural subjects that require microscopic definition over a largely extended field. Owing to its simplified construction, the *Periscope* is sold for less than half the price of any other lens doing the same quality of work. Send for list.

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1 Pair (matched) Ross Wide Angle Stereo Lenses . . .	25.00
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FOR SALE.—A gallery in one of the best towns in the State. Two railroads, water-works, electric lights (one in gallery), and everything necessary to make a first-class little city. Population 3500; in the county 17,000. Business been established ten years. Done \$2700 last year. Will sell cheap on account of poor health. Price only \$800. A splendid opening for a good man that wants to come to the grand state of Kansas. Don't write if you don't mean business. Address, Lock Box 14, Minneapolis, Kansas.

Quarter Century.—T. C. HEPPWORTH, Esq., author of the very acceptable "Notes from London" which appear in our pages and editor of the London Camera, writes the following concerning Wilson's *Photographies*:

A handsome book of nearly 400 pag. s, from the pen of one who is already known to the readers of the CAMERA. Dr. Edward L. Wilson, who tells us month by month what is going on

among the photographers of America, has produced in this volume one of the best and most original works upon photographic art which we have ever seen. It is constructed upon a somewhat new plan. The body of the work is printed in large type, which the reader is recommended to master before attacking the copious notes in smaller type which are printed beneath. The large type words are Dr. Wilson's, and the notes are gathered from nearly two hundred authorities, with the names and initials appended to each. The plan is a good one, and will be appreciated by the practical worker. Dr. Wilson has the gift of writing what would be very dry matter in other hands in a fresh and interesting manner, adorned frequently with touches of humor which give his work much charm. His extended experience in all branches of photography cause him to represent a good authority upon the art, and the beginner, as well as the advanced student, can not be in better hands as a guide. With regard to the notes, which, by the way, are illustrated—and well illustrated, like the rest of the book—they are evidently the outcome of most diligent research. One is often apt to regret that the little recipes, experiences, and dodges which form brief paragraphs in photographic literature should be too often forgotten in the limbo of back volumes. Dr. Wilson has preserved such items for us in the notes to his "Photographies," and for this reason alone the volume should find a place in every photographer's library.

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TO EDWARD L. WILSON,

I am glad to see you are publishing reproductions of Burnet's Essays on Art. If photographers really cared for art, which I sometimes doubt, and knew the value of these books, you would sell a large edition. I remember well as a boy, long before I had thought of photography, saving up my pocket money to buy one of these, at that time, expensive books. I chose the one on Composition, that admirable essay, which, with its illustrations, is so clear and convincing, I have always looked upon as the very solid foundation of all I may know of art. The other essays I have read and admired but never possessed, for by the time I could afford to buy them they were out of print and difficult to obtain. I strongly recommend these books to all who want to know what is really sound in art.

Respectfully yours,

H. P. ROBINSON.

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TO W. I. LINCOLN ADAMS,

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Respectfully yours,

NEW YORK CITY, December 24, 1887.

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It is handsomely bound in cloth. \$100 cannot purchase a copy of the original works.

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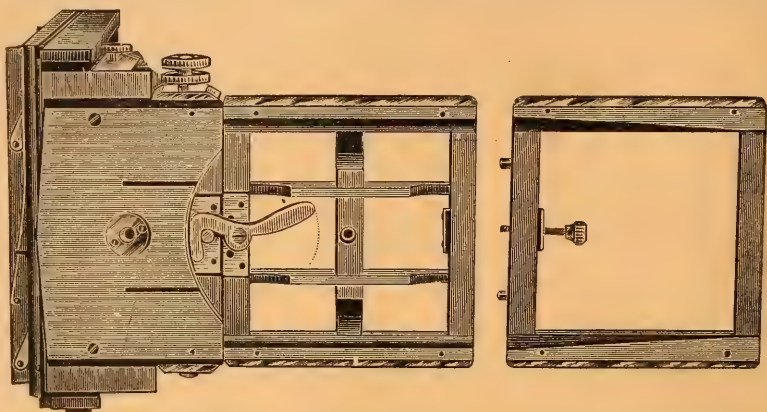
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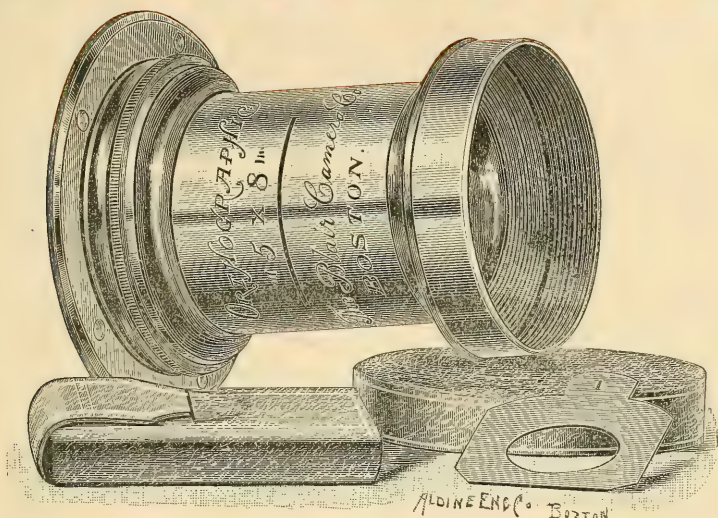
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These Lenses are made expressly for us by a maker whose fame for his unequalled Photographic Lenses is known not only in Europe but in this Country, where they are pronounced unsurpassed by any. Every Lens has both the guarantee of the maker and ourselves. They are absolutely aplanatic, can be focussed sharp to the extreme edge of the field, and are extremely rapid in action, making them very desirable for instantaneous work. They combine all the valuable qualities desirable in a Portrait or Landscape Lens.

The diaphragms are made and numbered in accordance with the recommendations of the Photographic Society of Great Britain, each number being double that of the preceding one, and requiring twice the exposure.

## PRICES.

No.	Size of Plate.	Size of Portrait	Dia. of Lenses	Back Focus.	Equiv. Focus	Price.
1	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$		$\frac{7}{8}$ in.	4 $\frac{3}{4}$ in.	5 in.	\$15.00
2	4 x 5	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$	1 ..	5 $\frac{7}{8}$ ..	6 $\frac{1}{4}$ ..	20.00
3	5 x 8	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$	1 $\frac{1}{4}$ ..	7 $\frac{1}{2}$ ..	8 ..	30.00
4	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	5 x 7	1 $\frac{1}{2}$ ..	9 $\frac{1}{4}$ ..	10 ..	35.00
5	8 x 10	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	1 $\frac{3}{4}$ ..	11 ..	12 ..	45.00
6	10 x 12	8 x 10	2 ..	13 $\frac{1}{8}$ ..	14 $\frac{1}{4}$ ..	60.00
7	11 x 14	10 x 12	2 $\frac{1}{4}$ ..	15 $\frac{1}{4}$ ..	16 $\frac{1}{2}$ ..	70.00
8	14 x 17	12 x 15	2 $\frac{3}{4}$ ..	17 $\frac{1}{2}$ ..	19 ..	125.00
9	20 x 22	17 x 20	3 ..	20 ..	22 ..	150.00

When the party is known to us we will send any size on ten days trial, providing express charges and cost for any damages will be paid.

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" 7 x 9.	" $6\frac{1}{2}$ x $8\frac{1}{2}$ .	1 " .65
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Truly yours,  
WILL. H. LEIGH.

BEAVER FALLS, PA., November 9, 1887.  
DETROIT, MICH.  
COPY OF LETTER FROM W. H. LEIGH TO MESSRS. ALLEN BROS.,

ALLEN BROS.  
GENTLEMEN: I send you by to-day's mail a curiosity, that is, it is such to me; to you it may be only what you see daily, viz., a 7½ inch head, made with a No. 5 B Suter Lens, with the No. 16 stop, in five seconds (poor light and slow plate at that). You will see that it is *microscopically* sharp from the end of the chin to the back hair over the ear. If it is of any use to you, you are welcome to it, and this statement with it.

I have had the lens for nearly two years, but never exposed it on a head in my gallery until within the last month, using it entirely for outdoor work. I shall continue its use under my light, shelving one of the best "D ——" extra 4 x 4 portrait lenses, that cost four times as much.

Respectfully,  
W. KNOWLTON.

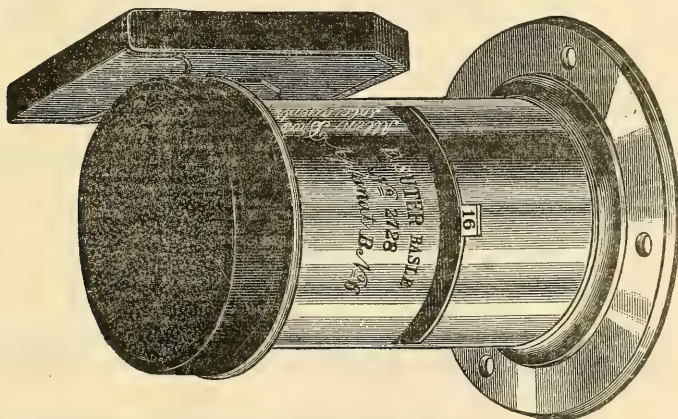
ALLEN BROS.  
NEW YORK, November 23, 1887.  
New York, to Messrs. ALLEN BROS., Detroit, Mich.  
Copy of Letter from W. KNOWLTON, Photographer, Studio, 335 Fourth Ave.,

MESSRS. ALLEN BROS.  
DEAR SIRS: The No. 6 B and 4 A Suter Lenses you sent me have been carefully tested alongside of a No. 6 ——. The latter lens does no such work as either of the Suters. I keep the No. 6 B and return you the No. 4 A by to-day's express.

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Truly yours,  
WILL. A. TRIPLETT.

BLUFFTON, OHIO, November 7, 1887.  
DETROIT, MICH.  
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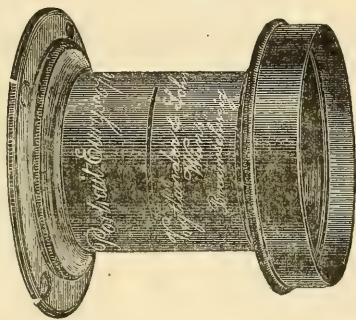
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We would state, furthermore, that no change will be made in the present style of Euryscope lenses. Send for price list which also contains the official report of the Photographic Society of Vienna on the above lenses.

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FOR PHOTOGRAPHS, ETC.

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A unique invention constituting a picture and frame combined, complete for the easel, mantel, or wall, by which all framing may be dispensed with.

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The Talcott mount softens the lines, adds much strength and great brilliancy to the picture, preserves the photograph, rendering it practically indestructible. Picture frames are expensive, go out of fashion, and take up room. A picture mounted by our patent mount can be displayed or packed in one-half the space required by a picture with ordinary framing, as by this process all other framing becomes wholly unnecessary, yet it is so constructed that, if desired, it can be placed in any ordinary picture frame, intact, and free from all interference.

Our invention relates to mounted pictures, such for instance, as a photograph; the object being so to mount the picture as to dispense with the ordinary picture frame, to preserve the picture, and to secure a richer, stronger, and more brilliant and life-like effect than has been heretofore produced by ordinary modes of mounting, and to afford, when so mounted, means for support and suspension of the same. The transparent plate is of the best quality that can be procured, shaped, and finished to each individual print, which print is securely enclosed and hermetically sealed in a neat and durable manner. The mount is provided with a strong suspension and support, the whole presenting a finish and richness to correspond with any surroundings, however elegant.

We append samples of the many testimonials cheerfully accorded us.

**E. K. TALCOTT:** We have supplied a large number of our customers with Talcott's improved glass mounts, and they have invariably expressed the utmost satisfaction with the same. In our own judgment preservation of photographs these mounts are invaluable.

*Boston, February 14, 1887.*

NOTMAN PHOTO. CO.  
3 Park Street.

Desiring to test practically the Talcott's Patent Process of mounting photographs (silver prints), I caused the inventor to mount a choice print for me seven months ago. I am pleased to state, that although the photograph has stood exposed to the full rays of the sun, every day it shows not the slightest trace of deterioration, and continues to be admired by all who see it. The Talcott method decidedly enhances the appearance of silver prints in every way, besides affording an extremely tasteful and elegant style of mount.

*Boston, February 25, 1887.*

WILFRED A. FRENCH,  
Office of Benj. French & Co., 319 Washington St.  
Importers and Dealers in Photographic Supplies.

**E. K. TALCOTT.**

DEAR SIR: Regarding your method of mounting photographs, we would say that it is by the best that we have seen, giving the picture a soft and yet brilliant appearance, while its simplicity takes nothing away from the picture itself.

*Boston, February 15, 1887.*

Yours respectfully

SOULE PHOTO. CO.

Soule Art Publishers, 338 Washington St.

**E. K. TALCOTT.**

*Boston, February 17, 1887*

DEAR SIR: I am much pleased with the manner in which you recently mounted a photograph of me, and can commend your process to all who wish photographs mounted and protected in a simple, durable, and elegant manner.

FRANCIS J. GARRISON,  
Firm of Houghton, Mifflin & Co., Publishers.

We are permitted to refer to Edward L. Wilson, Editor and Proprietor of the "Philadelphia Photographer," Ex-Mayor Martin, 324 Commonwealth Avenue, Boston; Williams & Everett, Art Dealers, 79 Boylston Street, Boston; George H. Hastings, Art Photographer 147 Tremont Street; W. H. Partridge, and many others.

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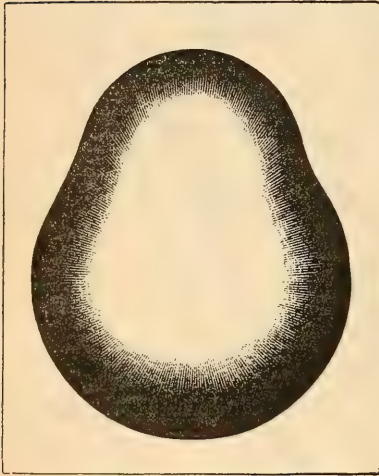
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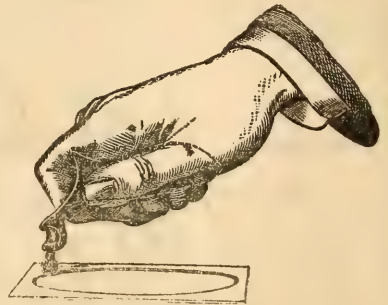
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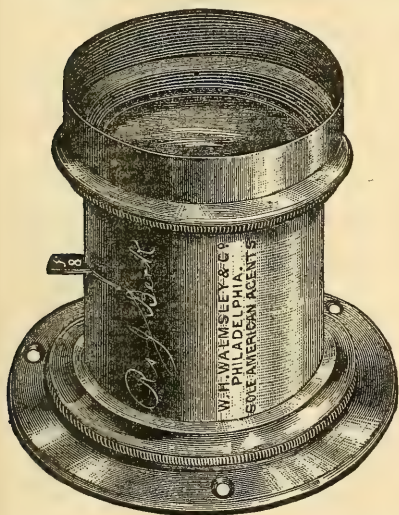
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NOTE BY THE PUBLISHER.

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I was obliged to make the unprecedented announcement last year, that in less than two weeks after its issue, all my paper bound copies of MOSAICS, 1887, were sold. I bought back and resold nearly 1000 copies. I hoped to print enough for 1888, but I did not, and have just reprinted an edition of 2000 copies, which are already nearly all gone. Order soon.

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THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXV.

FEBRUARY 4, 1888.

No. 315.

## PREPARE FOR ART.

WHEN some people stand upon a bluff, or a pier, or a mountain top, and look upon the glories of a sunrise or a sunset, and then backward and see the windows of buildings miles away all fired up with color, they do not generally realize that the whole of the space between the windows and the sun is full of just such color, and that only an intervening object is needed to catch it, no matter where one breaks the connection.

It seems to us that the present year of American photography is going to present just such an atmosphere—as full of beautiful coloring as it can be. Already the sun is up, and its splendid light surely reveals indications that there is much æsthetic enjoyment ahead. The first glimmer came with the advent of *Burnet's Essays*, made obtainable at such a nominal price. The next broad beams are to be seen in the series of Mosaic reproductions from the Chicago Prize-Takers, which began with our issue of January 7th, by Mr. Suck, and which will be continued in our issue of March 3d, by selections from the subject pictures of Messrs. Cramer, Randall, and Motes, to be followed in early April by Messrs. Montfort & Hill, Landy, Strauss, and Knaffl Bros. The charming light which comes in our current issue with Mr. Cramer's "Fairly Dance," is fine. The lessons from "Christ on Calvary" with the *Hiawatha* suggestions for the Blair Cup competition are to come next, and will be seen and understood by one and all, even though Mr. Robinson's

"Carolling" in our last number has so illuminated the air as to dazzle us all and daze one-half of us. Thus you observe, as far as we dare look now, the photographic atmosphere in which our readers work, is sure to be full of brilliant bits of light and charm. It behooves us, therefore, as your caterer, to provide you with such literary condiments, such intervening lessons as will enable you to intercept the light that is pervading, and thus enjoy and profit by the feast that is to come, and cause it to give out its charms before and for you.

Nothing in this direction can serve you better than a few hints as to *how to look at pictures*. When you *know* how, your enjoyment of them will be greatly increased. It certainly adds to your pleasure and to your wonder, to feel when you view a gorgeous sunset, that the solid rays which leap forth toward you, go on and go on, endlessly, and that if you get in the line of them—get high enough—you can intercept them and enjoy them, and that others are enjoying them, before you and behind you. And now the air is full of æsthetic light, all you have to do is to prepare yourself to reach out and reach up and gather in the pleasure and the profit, for you *can* put yourself in the way and *catch it* at any hour you choose. Those who have read the *Editor's Study* in *Harper's Magazine* for the last few months have shared our delight in the charming art suggestions of Mr. W. D. Howells. Here is a little taste which we would like all of our art-loving readers to take to heart. It is from the December *Harper's Magazine* as follows:

"I see that you are looking at a grasshopper there which you have found in the grass, and I suppose you intend to describe it. Now don't waste your time and sin against culture in *that* way. I've got a grasshopper here which has been evolved at considerable pains and expense out of the grasshopper in general; in fact, it's a type. It's made up of wire and card-board, very prettily painted in a conventional tint, and it's perfectly indestructible. It isn't very much like a real grasshopper, but it's a great deal nicer, and it's served to represent the notion of a grasshopper ever since man emerged from barbarism. You may say it's artificial. Well, it *is* artificial; but then it's ideal too; and what you want to do is to cultivate the ideal. You'll find the books full of my kind of grasshopper, and scarcely a trace of yours in any of them. The thing that you are proposing to do is commonplace; but if you say that it isn't commonplace, for the very reason that it hasn't been done before, you'll have to admit that it's photographic.

"As we said, we hope the time is coming when not only the artist, but the common, average man, who always 'has the standard of the arts in his power,' will have also the courage to apply it, and will reject the ideal grasshopper wherever he finds it, in science, in literature, in art, because it is not 'simple, natural, and honest,' because it is not like a real grasshopper. But we will own that we think the time is yet far off, and that the people who have been brought up on the ideal grasshopper, the heroic grasshopper, the impassioned grasshopper, the self-devoted and adventurous good old romantic card-board grasshopper, must die out before the simple, honest, and natural grasshopper can have a fair field."

True it is, that the "ideal" must not be expunged from our art studies, from our art love, or from our art works—our work must not be too "photographic," in the technical sense even, nor too technical. "How are we to become educated as to what is ideal?" We hear you ask. Study *Burnet's Essays*, and then study art criticism, which so abounds each day in the publications of our art-loving land. As an example, we make

some extracts from an article which appeared in a recent number of the Chicago *Saturday Evening Herald*, by that charming art critic, Mr. Enoch Root. His subject was the Art Institute Exhibition. He wandered along through the alcoves and the avenues like a care-free faun, singing here and there in praise of what charmed him, until he came to the works of Corot, when he sounded forth these rich notes:

"Very many admirers of the French school of art give Corot the first rank among modern landscapists. This would not seem just to so many, both French and American, artists who, in technical qualities, are fully his equal, unless it be in the rendering of air and light, in which he is the master of them all. Yet, in versatility and attention to truths of nature, he has many superiors. But in the rendering of a certain poetic sentiment of nature, a phase of quiet melancholy, produced, it is true, by many sacrifices of local truth, there is no doubt that he touches a higher and deeper source of feeling in the human soul than any other landscape artist that has ever existed. In a certain sense he is the *fra angelico* of nature's external domain, and in this aspect fully justifies the high estimation that has been accorded to his transcendent genius.

"The casual observer, at a first view of his work, even if a person of refined taste, will often wonder wherein lies the secret of the almost universal admiration for these simple transcripts from nature. There is no brilliant color, no dazzling sunlight or storm-raging effect, no realistic rocks or trees, or any striving after pictorial beauty to excite or spur the imagination, such as are usually deemed essential to the success of a great artist. A mass of dark foliage freely, which the atmosphere penetrates freely, whose branches and leafage is suggested, rather than expressed, against a cool silvery-gray sky, glowing with light, a reach of water with reflections, a dark boat containing a figure dashed in, upon which is a single touch of bright color to give value and harmony. This is one of his most characteristic pictures.

"Is it not charming? No? Wait! The picture is a surprise. You are looking for qualities to admire that are not to be found.

It is opposed to all your idea of what to expect in a great work of art. You feel its harmony of tone, but nothing more. The shock has been too great for your receptive faculties. You are seeking for a painting and have not yet discovered the poem; for the painter, and have not yet recognized the poet. His greatness rests in this rare blending of the two, but if the poetic sentiment is not seized the higher motive of the work lies undiscovered. But this picture will have impressed you more than you are aware. It will be carried in the memory long after others more dramatic have faded from the mind. You will dream of it, and the next exhibition you will study Corot more attentively; the next still more; the Corot sentiment is imperceptibly taking possession of your heart, its quiet melancholy is stealing in, like low, plaintive music that brings rest to the spirit and peace to the soul, until at last you find the master, and understand the enthusiasm of his admirers, who would place him supreme among landscapists. Henceforth you are one of them.

"The most characteristic examples of Corot are No. 79, 'Ville d'Avray,' owned by T. B. Blackstone; No. 219, belonging to C. J. Singer; No. 203, Potter Palmer's. The two latter are much more elaborated compositions than are usually found in this artist's works. The 'Flute-Player' is also fine, while the 'Dancing Nymphs' is more in his earlier classical style when under the influence of his journey into Italy.

"The transition from the dreamy, pearly grays of Corot to the vigorous darks and browns of Theodore Rousseau, is like that of stepping into a new world. Yet, this latter, seen at his best, has a subtle sentiment of nature that places him, although in a different sphere, among the great poetic painters. As he was leader among these chiefs, to break away from the traditional copyists of Poussin, the title of 'Father of Modern Landscape' has been justly accorded to him. His pictures resemble Ruysdael in handling, that artist's works being greatly admired by him, but in composition were less conventional and more nearly allied to nature in color and sentiment. An exces-

sive and pernicious use of bituminous pigments has caused many of his pictures to turn so black as to be valueless as examples of his keen appreciation of the harmonies of the visible world and delicate perception of chromatic effects. It was his canvases, perhaps, more than any of the others, that prompted Ruskin to speak of the modern French landscapists as the 'Black Masters.' If Corot could be called the painter of the morning, Rousseau certainly deserves the designation as artist of the evening. It is in these delicious twilight effects that he is seen to the best advantage."

Good friends if this does not stir you up to the enjoyment of your surrounding privileges and help you get into the light, then we will try again at some future time.

[Translated for the Philadelphia Photographer.]

## THE USE OF HYDROXYLAMINE.

BY DR. J. M. EDER.

THE author states that it is now possible to produce hydroxylamine at a moderate price in the state of chlorhydrate of hydroxylamine, which is perfectly well adapted for photographic operations, say at 62 f. 50 the kilo. According to Eglic and Spiller, the developer may be composed as follows:

### A.

Alcohol . . . . .	15 parts.
Chlorhydrate of Hydroxylamine	1 part.

### B.

Water . . . . .	8 parts.
Caustic Soda . . . . .	1 part.

For use add to 60 parts of water from 3 to 5 parts of A and 5 parts of B. Here follow the comparative prices of the two usual developers and of the new agent. The ferrous oxalate developer costs fifty centimes the litre, the pyrogallie acid developer costs twenty-five centimes the litre, and the hydroxylamine developer costs thirty-seven centimes the litre.

It may be remarked that it is possible to develop with hydroxylamine, in an equal volume of bath, a greater number of clichés than with the other two developers. Hydroxylamine is also suitable for silver posi-

tives. In this case the composition of the developer, according to Spiller, is as follows:

A.

Alcohol . . . . .	480 parts.
Chlorhydrate of Hydroxylamine	15 "

B.

Water . . . . .	8 parts.
Carbonate of Potash . . . . .	6 "

C.

Water . . . . .	8 parts.
Ammonia . . . . .	1 "

To develop take 30 c.c. of water,  $1\frac{1}{2}$  c.c. of the solution A, and 40 drops of B. If a warm tone is desired add 1 drop of C. The peculiarity of this developer consists in the whites remaining very pure, and the tone is very favorable in the printing.—*Moniteur*.

### THE GERMAN JOURNALS.

OUR German contemporaries are teeming with interest recently. The opening article in the *Vienna Correspondenz* is by Josef Löwy, court photographer. It describes a visit to the studio of Dr. E. Albert, Munich, and tells especially of his negatives and heliogravures. Mr. Löwy, after mentioning his courteous reception by the proprietor, proceeds to tell his readers what he saw, and mentions that what interested him more than all, was the wonderfully fine pictures produced by Dr. Albert's own collodion emulsion. The negatives were taken from water colors and oil pictures with the isochromatic emulsion plates and without yellow disk. This emulsion the Doctor uses mostly in a wet condition; the emulsion is spread over the glass plate in the dark, and after dripping it is laid in the holder and exposed. The negative is very rapidly developed and rapidly fixed.

Dr. Albert does not busy himself much with production of photographic copies on albumen paper, but only with the production of negatives. In his atelier, as in most of the Munich studios, heliogravures are much in demand, for the publishers prefer this method to photography.

Mr. Löwy closes his sketch with a tribute to the intelligence and ability of Dr. Albert, and the announcement that the photog-

rapher of Munich is to pay a visit to the Vienna Society, and there tell of some of his newest experiments.

A somewhat lengthy article on the subject of "Lime Clichés from the Standpoint of Printing Technique," is ably written by G. Fritz, Technical Inspector of the Court and State Printing. Three illustrations serve to point his statements—the first, a typographical cliché by Paul Pretsch, taken from a lithograph and diminished one-fifth. The picture represents the Christ teaching the Lord's prayer. "Our Father" (*Vater Unser*) is the title of the pictorial design.

Another one of these clichés taken from a water color, an ink drawing, and diminished one-fourth, is by Allgeyer, and represents a scene among the reeds and grasses, with water fowl. One of Prof. Husnik's lime clichés is also given—a head of a woman wearing a diadem.

A large collection of clippings from other photographic journals, German, French, and English, occupy the middle of the magazine; also, a translation of M. Carey Lea's article on the "Combination of Chloride of Silver with other Metal Chlorides." The Vienna Society and the Frankfort Society of Photography and Kindred Arts, are as flourishing as ever, as is instanced in the many and interesting notes of their meetings.

Among the brevities which close this magazine, we notice a paragraph respecting a monument to Paul Pretsch, the inventor of galvanography. Several ideas have been advanced, but the one which gains the most favor, as being, under the circumstances, the most suitable, is that of making a medallion in relief, and assigning it the place of honor in the local circle, to which he belonged. It will be made by a celebrated Austrian artist, and will be ready in January or February of this year.

The frontispiece of Herr Carl Srna's magazine, *Photographisches Rundschau*, claims special attention. It is a light print prepared by A. Friesch, in Berlin, and represents a monument with the figure of a man present. The negative was taken on Eastman paper, 18 x 24 c.m., with Talbot's apparatus, and Voigtländer's Euryscope No. 3, the second smallest stop, and two seconds

exposure. The editor is indebted for the picture to the Baron von und zur Gilsa, one of the ablest representatives of the Amateur Club.

Baron Hübl writes, in this journal, concerning the "Choice of Negative Processes," and Dr. Mallman and Ch. Scolik contribute their notes from the Photochemical Laboratory in Vienna, treating in this number of a sensitive orthochromatic collodion emulsion process. Rudolf Spitaler writes of "The Photograph of the Firmament," and the doings of the Amateur Club of Vienna are noted.

In *Photographisches Archiv* the following paragraph, called "The Best Means," occurs under the heading of "Mosaics:" A mother brought her little daughter to have her picture taken, but, notwithstanding all the photographer's arts and blandishments, the little maid couldn't be got to sit still; finally, the operator said to the perplexed mother "Madam, if you would step out of the room a minute and leave the little girl to me, I think I could manage it." The mother had scarcely got outside the door when the photographer triumphantly called her back to see a very good negative. On the way home the mother said to her child, "Nelly, what did the man say to you when I left you alone with him?" and Nelly made answer: "He said, You little wretch (infamous rascal!) sit still, or I'll shake you."

### MR. OBERNETTER'S PROCESS FOR PREPARING GELATINE EMULSION.

(Reprinted by Request.)

To make a litre of emulsion, dissolve 10 grammes of crystallized soda and 8 grammes of citric acid in 100 cubic centimetres of water; heat slightly until all the carbonic acid is given off, then add 50 grammes of gelatine dissolved in 500 cubic centimetres of distilled water. Between times, dissolve 100 grammes of nitrate of silver in 200 cubic centimetres of distilled water; add this solution, agitating, to the gelatine solution, and, finally, 50 grammes more of water with which the vessel that has contained the silver solution is rinsed. The tem-

perature of the silver solution should not exceed 68° centigrade, nor be less than 38°. After agitation, filter through wet flannel into a porcelain dish large enough to give a depth to the liquid not exceeding 2 or 3 centimetres. The emulsion is allowed to set in a dark and cool place. The solidified emulsion is afterward cut, by means of a horn spatula, into small pieces of from 1 to 2 centimetres square, which are placed in a vessel holding about three quarts, and to it is added a solution of 30 grammes of crystallized soda and 100 grammes of bromide of ammonium in 500 cubic centimetres of distilled water; temperature of this solution, 15° to 17° centigrade. Agitate the whole with the aid of a glass rod, four or five times during the first two hours. The nitrate of silver is now changed into bromide of silver. After from twelve to eighteen hours the liquid is rejected, and the pieces of emulsion are washed from twelve to twenty-four hours, in water frequently changed. The emulsion is now ready for use. The author advises the use of the gelatine of Heinrich: equal parts of emulsion gelatine, and of gelatine for photography. He recommends to allow the gelatine to harden before cutting. To obtain this result, it is well to place the dish in ice or in a refrigerating solution. To cut the emulsion, a well-cleaned horn comb may be used with advantage. To ripen an emulsion, which has remained some time in alcohol, it is first washed with water so as to remove the alcohol, and then melted over a water-bath at a temperature of 88° C. To 100 grammes of emulsion add 4 grammes of bromide of potassium and  $\frac{1}{4}$  gramme of iodide of potassium, dissolved in a little water; after agitating strongly, allow to rest for a half hour at a temperature of 88° C; allow to cool at about 50°, and add to 100 grammes of the emulsion  $\frac{2}{3}$  of a cubic centimetre of ammonia; after setting wash in the ordinary way. The ripe emulsion, as well as that which is not so, may be kept for an indefinite time in alcohol not exceeding 70° in strength; this offers the great advantage of having the emulsion ready for use during the whole year; it suffices to wash the pieces of emulsion for two hours in a glass vessel, the water being frequently changed.—*Moniteur*.

## PRACTICAL POINTS FROM THE STUDIO.

**NON-ACTINIC GLASS FOR THE DARK-ROOM.**—Mr. H. Wilson writes to the *Photographic News* about the production of window-glass, non-actinic, suitable for lighting the dark-room. He takes a sensitized gelatino-bromized plate, of the size of the window or of the lantern, and exposes it to white light, either in the camera or in the air sufficiently long to obtain a good medium density. He develops, fixes, and then strengthens the film by means of Schlippe's salts; he then dries. By exposing such a plate on sensitized paper, this last remains perfectly white, says the author, as there is nothing so transparent or translucent, and at the same time so opaque to the actinic rays, as a plate treated in this manner.

**ARTIFICIAL ROCK.**—It may be interesting to possess some accessories which form a pleasing addition to the picture. Here is a way of making easily and cheaply artificial rocks, very light, and easily carried about. Take a plank of the size that you wish to give to the base of your rock, and commence by placing in holes, that have been previously made, four very light uprights; then fix, here and there, on the plank other large and small uprights, care being taken, if you wish to have a gradual slope, to make them smaller, and this progressively, as far as the edge. This being done, take a strip of brown or dark green calico, coat it with glue, and place it, the coated side down, on the uprights, care being taken to leave all the hollows and projections, and if necessary to make depressions by forcing the cloth between two uprights, and allow to dry forty-eight hours. This is for the framework. To dress the framework thus obtained pass some glue over most of the raised portions, and sprinkle over them sand mixed with small lumps of salt, or small pieces of marble of all colors; same operation for the hollows, but using instead of sand moss. Then with colors prepared with glue, finish the work by roughly painting the projections and hollows not covered with the sand or moss. The effect of rocks thus obtained is very

striking, and we may say with Boileau, "a fine disorder is often an effect of art."—*L'Amateur Photographe*.

**SILVER STAINS ON NEGATIVES.**—We know that when the paper or negative is damp, this last in the printing is covered with little brown silver spots. To remove them plunge the negative for five minutes into clear water, then for twenty minutes in a solution of

Iodide of Potassium . . .	1 part.
Distilled Water . . .	24 parts.

Should the spots be old the immersion should be prolonged during half an hour.

The negative is then plunged into a bath of

Potassic Cyanuret . . .	1 part.
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The spots are rubbed with a tuft of cotton until they disappear, care being taken to use a more concentrated solution and to prolong the immersion if the spots again show themselves.

**TO INCREASE THE RAPIDITY OF GELATINO-BROMIDE PLATES.**—To effect this Huntly plunges them, before development, into a solution at  $\frac{1}{3000}$  of nitroprussiate of soda. The results are analogous to those given by a bath of hyposulphite of soda at  $\frac{1}{5000}$ , but with this advantage, that the nitroprussiate of soda acts in the same manner as pyrogallie acid.—*Phot. Mittheil.*

**CYANIN BATH.**—Dr. Eder states that gelatine plates rendered sensitive to red or to orange by a cyanin bath are less rapid than the ordinary plates, or those colored with erythrosine. They require an exposure four or five times longer. They cannot be kept for more than from eight to ten days; the reduction commences on the edges and spreads, little by little, on the internal surface of the plate.—*Phot. Mittheil.*

**PAPER "window glass"** is now said to be an assured fact. As described: "A window pane is made of white paper, manufactured from cotton or linen, and modified by chemical action. Afterward the paper is dipped in a preparation of camphor and alcohol, which makes it like parchment. From this point it can be moulded and cut

into remarkably tough sheets entirely transparent, and it can be dyed with almost the whole of the aniline colors, the result being a transparent sheet, showing far more vivid hues than the best glass exhibits."

#### ON THE BEST METHOD OF COATING THE BACKS OF PLATES TO PREVENT HALO.

—The *British Journal* recommends a mixture composed of gum arabic, lampblack, glycerine, and water (this mixture has been recommended for a long time in the *Bulletin*, we use dextrine instead of gum arabic, and we have always had excellent results). Dr. Stolze especially recommends the use of aurine collodion, composed of normal collodion at two per cent. to which is added one-third of its volume of a saturated alcoholic solution of aurine, and one per cent. of castor oil. This collodion does not act on the developing baths, and is only removed after fixing and washing. In the red light of the dark-room the coating seems colorless, and allows consequently the observing of the progress of development by transparency.—*Photo. Wochenblatt*.

#### THE DIFFERENT USES OF GELATINE.—

Sheets of gelatine colored by different non-actinic substances may be used for the windows of dark-rooms. They may also be made into boxes or lids closing hermetically. Corks may be steeped in a solution of gelatine to which a little glycerine has been added; gelatine may also take the place of bottle wax for sealing bottles; it may also be used for coating damp walls; it is then to be mixed with bichromate of lime. After having applied to a damp wall a coating of gelatine to which five per cent. of bichromate has been added, it may with all security be papered after an exposure of five days to the light. It is also very useful to coat the labels on bottles with gelatine to which a small quantity of alum has been added.

The photographer who wishes to make his color bite on an albumenized paper print may follow the following formula: Forty parts of good gelatine and twelve parts of soap are dissolved in fourteen hundred and forty parts of hot water, to which are afterward added twelve parts of powdered alum and six parts of the extract of

ox-gall, then filter. If a platinotype is to be painted, unless he be very skilful, the artist will find it difficult to paint with water colors, or even to make hatching and stippling if the print has not been previously coated with a solution of a pinch of Nelson gelatine dissolved in six hundred parts of water. The print is plunged into this liquid and then dried.

We need not speak of the use of gelatine for mounting prints, as the formula has been frequently published.

An excellent cement may be made with gelatine for repairing articles of glass, wood, porcelain, leather, etc. To prepare it take one part of hard gelatine, which is to be dissolved with the aid of heat in one part of acetic acid, and then add one part of alcohol. This composition should be kept in a well-stoppered bottle. To use this cement it is necessary to heat the bottle in warm water.—*Photo. Industrielle*.

PROFESSOR EDER gives a new process for preparing gelatine emulsion, due to a Russian, Mr. Wiatcheslaus Sresniewski, manufacturer of dry plates:

#### No. 1.

Bromide of Potassium	. 8 gr. (4½ drs.)
Distilled Water	. 20 c. c. (5½ fl. drs.)
Gelatine (Nelson No. 1)	. 1 gr. (15 gr.)
Carbonate of Ammonia	. 1 gr. (15 gr.)
Iodide of Potassium	. 0.2 c. gr. (3 grs.)

#### No. 2.

Nitrate of Silver	. 10 gr. (2½ drs.)
Distilled Water	. 40 c. c. (11 fl. drs.)
Nitric Acid (Sol. at 10 p. c.)	2 drops.

#### No. 3.

Alcohol at 95 per cent.	. 50 c. c. (13½ fl. drs.)
Ammonia	. 4 c. c. (1 fl. dr.)

(Temperature 68° F.)

No. 2 should first be added to No. 1. Then slowly mix with No. 3, strongly agitating. The emulsion is kept for eight or ten hours at an ordinary temperature. Finally add a warm solution of:

Gelatine	. 18 grs. (4½ drs.)
Water	. 130 c. c. (4 fl. oz.)

Precipitate with alcohol, allow to set, and then proceed with the washing in water.

**RAINBOW PHOTOGRAPHS.**—We learn from Hanover that Dr. Keyser, of that city, whilst at Right obtained some very beautiful views of rainbows, using the isochromatic plates of Dr. Vogel. Mr. Ellerbert, of Liverpool, has also obtained several plates of this description.

**TO PREVENT HALOS.**—M. Cassan, of Toulouse, writes to the *Progrès Photographique*, that the application to the backs of sensitive plates of divers antiphotogenic coatings recommended for preventing halos, seems to him to be tedious and but little practical, and he adds: "Why, instead of coating the backs of sensitive plates, should we not simply, after having placed them in the negative frame, place a sheet of black cardboard on the back of the plate?"

Why? Because to prevent halos it is necessary to prevent the reflection of the light on the back of the plate, which for this purpose should be placed in optical contact with a substance whose power of refraction should assimilate as far as possible to that of glass, a substance which absorbs the actinic rays. M. Cassan may, therefore, place behind his sensitive plate sheets of black cardboard or any other surfaces capable, however, of absorbing the light without obtaining the optical contact; there will always be an intervening layer of air and reflection will still occur.—*Journal de l'Industrie Photographique*.

THIS is what Mons. Léon Vidal, editor of *Le Moniteur*, has to say about Messrs. Lumière's suggestions on page 46 of our last issue.

"We do not have here a process capable of taking the place of those actually in use, but simply a compound leading to development, although with imperfections that further experiments may remedy. At any rate, it is well to know what substances are capable of developing the latent image, and Messrs. Lumière have with reason deemed it interesting to publish this one, even if they have to give later formulas of a more practical use." The chemist and photographer who gave me the chemical terms says, "as the bromide of copper is a salt not easily soluble, it may be the cause of thin plates."

**GELATINIZED WIRE CLOTH TO TAKE THE PLACE OF RED GLASS.**—M. Marguerie has had the happy thought of plunging wire cloth into a bath of gelatine in order to form a sort of resisting tissue, or rather a sort of flexible plate, more solid than paper or colored stuffs. Owing to the flexibility of the wire cloth, it is possible to make lanterns for travelling, having the elements of the greatest simplicity, whilst at the same time capable of resisting rough usage without breaking or tearing. It is evident that if this colored wire cloth is to be used instead of glass, in the dark-room, it would be well to verify if the coloring matter used is anti-actinic, and at the same time sufficiently solid to not undergo dislocations by the action of the luminous rays.—*Moniteur*.

**AN EXCELLENT DEVELOPER WITH SODA SALT.**—Mr. Briginshand, who had paid much attention to the development of lantern slides, has informed the London Photographic Society that he uses with the greatest success a developer with soda salt, very easily prepared, and which never fails to give satisfactory results, even in the hands of amateurs. Here is the formula: First make a solution (which may be kept without decomposing for an infinite length of time) by taking of ordinary carbonate of soda (salt of soda), 3 ounces, 7 drachms; bromide of potassium, 31 grains; and water, 40 ounces, 6 drachms. When using, add at the time, to this liquid, 1 grain of pyrogalllic acid, which is to be dissolved in it. With a little practice, it is possible to obtain with this developer all the desired intensity. It is cheap, keeps perfectly well (before the pinch of pyrogalllic acid), and gives excellent results even in the reproduction of microscopic objects—DR. PHIPSON, in *Le Moniteur*.

**A PROCESS FOR PRINTING PHOTOGRAPHS, WITH FATTY INK, ON PARCHMENTED PAPER STRETCHED OVER THE AUTOCOPYIST.**—Mr. Raymond, Director of the Autocopyist Society, has shown some results which furnish absolute proof of the complete solution of the problem; that is to say, the possibility of making prints with half-tones on flexible supports suitably stretched. The support used by Mr. Raymond consists of

parchmented paper coated with gelatine; the stretcher is the autocopyist itself. The paper is sensitized with bichromate of potash. Exposure to light is made in the same way as for ordinary photogelatinography: Wet, stretch, and print. The mode of pressure is much simplified, since a letter copying press may be used. This is a very important progress in the mode of transforming the photographic cliché.—*Moniteur*.

**TWO RECIPES.**—To bring out weakly-lighted plates, lay them before developing in the following bath (Vorbäd): Water, 150 c.cm.; quicksilver chloride solution (1 : 500) 5 drops; concentrated fixing soda solution, 1 drop. Let the plate stay in this thirty seconds, then wash well and develop with iron oxalate.

A new alkaline developer for gelatine plates, recommended by Leon Vidal:

#### *Solution A.*

1.—Potash (chemically pure)	. 6 grs.
Distilled Water	. 5 c.cm.
2.—Carbonate of Ammonia (pure)	1 gr.
Distilled Water	. 5 c.cm.

Mix 1 and 2. The mixture will keep an unlimited time.

#### *Solution B.*

Saturated Solution Sulphide of	
Soda	. 25 c.cm.
Pyrogall	. 10 grs.

This mixture keeps clear for months. Pour as much distilled water into a dish as is necessary to cover the plate. Then add to every 100 c.cm. of water 1 c.cm. of solution B, mix well, and lay the plate in it for few minutes, then take the plate out and add solution A, by drops, mixing well. A must never be added while the plate is in the dish.—*Photographisches Archiv*.

**REPRODUCTION OF A CLICHÉ IDENTICAL IN SIZE OR ENLARGED.**—The impression is made by contact; it is better that the cliché should be made on plate glass and that the plate to be printed should also be on plate glass; contact is the more perfect. The exposure should be longer than for obtaining a positive; the development is made in the usual way with oxalate, but it should last

long enough for the positive image to be entirely visible on the back of the plate; after careful washing, the film is coated with a solution of chromic acid until the plate becomes perfectly white. After washing, immerse the plate in a solution of ammonia, again rinse; expose for a few seconds to the light, then develop in the developer already used, and fix.

If a cliché is to be enlarged a rectilinear or aplanatic objective is to be preferred. The exposure should be long enough for the image to appear immediately, during development, and for the plate to become immediately black. At the end of two minutes the plate should be black on the side of the glass. As soon as the chrome solution has been poured over the plate, it is no longer sensitive to light, and the operation may be performed in full daylight.

Here are the formulas to be used:

#### *Chromic Acid Solution.*

A.—Water	. 100 c. c.
Bichromate of Potash	. 20 grammes.
Concent. nitric acid	. 100 c. c.

For use, take:

Water	. 150 c. c.
Solution A.	. 10 c. c.

#### *Solution of Ammonia.*

Water	. 100 c. c.
Concent. Ammonia	. 2 c. c.
Bromide of Ammonium	1 gramme.

#### *—Progress Photographique.*

**DEVELOPER FOR THE EASTMAN PELLICLES.**—Formula of M. Wollaston:

No. 1.—Sulphite of Soda	. 8 parts.
Distilled Water, hot	. 40 “

After cooling, slightly acidify with citric acid, add one part of pyro and filter.

No. 2.—Carbonate of Soda	. 3 parts.
Carbonate of Potash	. 1 “
Water	. 40 “

Mix equal portions of Nos. 1 and 2 for the normal exposure. The development should be carried to the ordinary density of that of plates, and it should not be forgotten that the paper, which is simply translucent, must be afterward removed.—*Bulletin Belge*.

MR. EUGENE HIMLY, in *Photographisches Wochenblatt*, writes a short and interesting article on "The Development with Hydroxylamin by the Addition of Hydrochinon."

He gives the following solutions as conducive to a favorable result:

Solution A.—1 part etching-soda to 8 parts water; 8 parts white sugar and 4 parts syrup.

Solution B.—Twenty parts hydroxylamin, 50 distilled water, 250 parts alcohol.

These two solutions are mixed, 2 parts A and 1 part B, and water added in the ratio of 1:5. Unfortunately, this development gives only very thin negatives, and in order to remedy this, from 25 to 30 drops from a hydrochinon solution of 1:10 alcohol, are added to each developing.

In a recent issue of the German *Amateur Photograph*. Herr Alfred Stieglitz explains how much time is occupied in taking a picture. He gives the following synopsis:

#### Negative Making.

Posing and exposing . . .	2 minutes.
Development hastened by first bath . . .	3 "
Fixing . . .	3 "
Washing . . .	1 minute.
	<hr/> 9 minutes.

#### Printing.

Printing on bromide silver paper directly from the wet plate . . .	1 minute.
Development and acid bath	6 minutes.
Fixing . . .	6 "
Washing in eau de Javelle	10 "
Alcohol drying . . .	4 "
Cutting and mounting . . .	3 "
	<hr/> 30 minutes.

A picture thus rapidly made turned out well, and remains unchanged to the present day.

#### REDUCING NEGATIVES THAT ARE TOO INTENSE.—

Perchloride of Iron . . .	62 grains.
Citric Acid . . .	124 "
Chrome Alum . . .	46 "
Water . . .	1000 c. c.

Plunge the negative into this solution for a few minutes then into a hyposulphite bath

at 15°; after a few seconds watch the degree of reduction; this reducer is very energetic and by remaining too long a time in the hyposulphite, the image would entirely disappear. Wash thoroughly on coming from the hyposulphite.—*Progrès Photographique*.

#### HYDROQUINONE DEVELOPER.—

A.—Carbonate of Soda . . .	4 grammes.
Water . . .	30 c. c.
B.—Hydroquinone . . .	7 grammes.
Sulphite of Soda . . .	4 "
Water . . .	30 c. c.

For use, mix: Water, 1 part; A, 1 part; B, 2 parts. The water should be hot or cold according to the season.—*Bulletin Belge*.

GELATINE EMULSION OF SZESNIEWSKI.—This process is a modification of that of Henderson.

#### No. 1.

Bromide of Potassium . . .	123 grains.
Distilled Water . . .	5½ fl. drs.
Gelatine . . .	15 grains.
Carbonate of Ammonia . . .	15 "
Iodide of Potassium . . .	3 "

#### No. 2.

Nitrate of Silver . . .	154 grains.
Distilled Water . . .	17 fl. drs.
Nitric Acid (solution at 10 per cent.) . . .	2 drops.

#### No. 3.

Alcohol at 95° . . .	13½ fl. drs.
Ammonia . . .	62 grains.

Add No. 1 to No. 2, mix slowly, and after agitation, add No. 3. The emulsion is allowed to rest for from eight to ten hours in a room at the ordinary temperature. Now add a tepid solution of:

Gelatine . . .	4½ drs.
Water . . .	14 fl. oz. 1½ drs.

Terminate by precipitating with alcohol or washing in water.—*L'Amateur Photographe*.

PHOTOXYLINUM is a new kind of gun-cotton, which is to be produced in Russia, by a secret process. It will be more easily soluble than gun-cotton.

**PHOTO-MICROGRAPHY.**

BY A. G. FIELD, M.D., LL.B.,  
Des Moines, Iowa.

IN the wide world of the infinitesimal beyond the reach of unaided human vision, the microscope and camera go hand in hand, the one solving and interpreting the intricate problems of nature, the other publishing in language universal.

Along the outposts and skirmish lines of the advance guard of scientific progress unimpeachable witnesses are thus brought forward. Conjecture and hypothesis are resolved either into the mists of nothingness or into sharp-cut evidences of truth that furnish solid foundations for the rapidly widening borders of every branch of physical science. In the path of the microscope and camera all may read where before was utter obscurity. Earth, sea, and air; rocks, sands, and reefs, in the diverging rays, yield their grip upon the mysterious to enlarge, enrich, and beautify the understanding of man.

What is true of the inanimate is also true of the animated world. The chemistry of living as well as the chemistry of dying has forms and features radiant with the strange beauties of the borderland between spirit and matter. Deftly spun shreds and reticulii, cells, nuclei, and pulsating vacuoles, wrought in the genial warmth of nature's laboratory, glisten with romantic stories of the primary elements as they are unfolded in the listening ears of scientific gossips. Life histories hidden away since the world began, great oceans of them are revealed for the permanent endowment of human knowledge. The utilization of such knowledge has been the means of prolonging the span of human life, some forms of disease have been prevented, and others abridged. Pain, suffering, and poverty in many instances have been averted; and in the industries millions have been saved and added to the material wealth of the world.

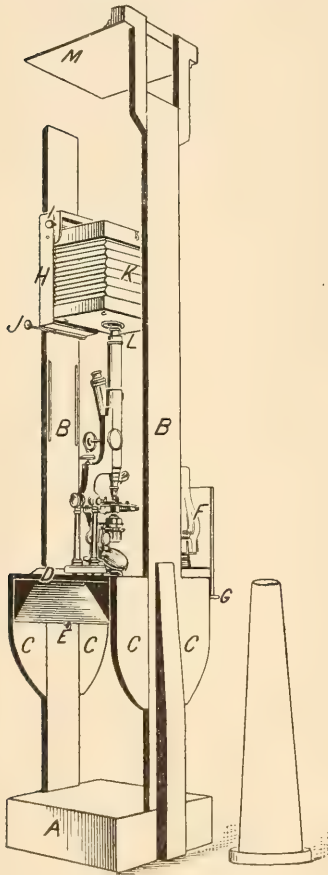
Nowhere has photo-micrography been of more signal service than in medicine. The ultimate changes of structure in development, nutrition, and growth as well as in disease and death, are by it susceptible of being pictured upon the canvas for more general study. Just now and for the last few years

the eyes of medical men have been centred upon investigations pertaining to the so-called germ theory of disease. Monads, micrococci, bacilli, spirilla, and other forms of bacteria, charged with high crimes against the genus homo, have been the subjects of scrutinizing study as to their forms, habits, propagation, and alleged pernicious influence upon their hosts and *other society*. The highest skill of opticians has been in demand for objectives that would show up the most; and with the best in hand, controversies of no small magnitude have arisen as to what has been seen. That stern arbitrator the sensitized plate has been frequently appealed to, and the hearing has generally been final.

Very few possess the requisite skill to prepare and mount without shrinkage or distribution these minute organisms for use, and none will, I think, regard them as valuable for study, when it is not essential to differentiate them by color, as they are while yet free and healthy in suitable nutrient fluid. To poise such fluids without consuming unnecessary time in fixing the cover-glass, the microscope stage must be horizontal and practically level. It is of first importance that the light, object, and axis of objective and ocular be centred in exact line with the middle of the transverse sensitized plate in the holder of the camera. It is also necessary to maintain each of the several parts in their respective position with the utmost rigidity, more especially in using the highest power objectives where all the light is admitted through an aperture one-fiftieth or one-hundredth of an inch in diameter, and where the time of exposure may reach an hour or two, even with the most sensitive plates.

The vertical stand devised to secure these ends can also be used to advantage in copying. It consists of, A, base 14 x 14 x 5 inches to which is secured by dovetail, glue, and large screws precisely perpendicular to the base, two uprights, B, B, 5 x 1 inches and 7 feet high, grooved on edges to receive the tongues on the arms, C C, C C, of the secondary base, and of camera carrier. The uprights are made firmer by additional pieces extending up thirty inches from the base. D, is a secondary base 14 x 14 inches

corner braced, as shown, with four strong arms, C, C, C, C, and adjustable as to height. It is perforated in centre for tube of microscope when resting upon the base, as used in making great amplifications; with long powers it is used as the stand for the microscope, as shown in cut. E, set



screw by which it is maintained at any desired position. F, lamp on the lamp rest, G, which slides on cleats attached to corner brace of supplemental base, and which has an upright to which a reflector may be attached. H, sliding carrier for camera with tongued arms and of proper depth to bring the centre of tube collar exactly in line with axis of microscope. I, set screw by which it is retained in any desired position. J, milled head of pinion by which it is racked

down to attach camera, K, to eye-piece of microscope, L. This bright light connection is made with one-half of a child's rubber ball of proper size to fit the tube collar firmly, perforated in the centre for the neck of the ocular. The Zentmayer form of ocular mounting with removable cap works very nicely. When desirable to increase the distance from microscope to camera I use a hollow cone of black paste-board 20 x 5 x 2 inches attached to separate camera front. It is also useful in copying with the lens in the distant extremity, the camera being reversed, the microscope removed, and the stand placed horizontally on a table. The picture is placed against the copying stage, M, provided with tongued arms and adjustable as to position. The copying stage, base and supplemental base are all traced with parallel and diagonal lines one inch apart on their respective faces to facilitate centring.

The stand has appeared to answer all requirements, is inexpensive and easily constructed.

The first attempt at photo-micrography may result in a blurred image, notwithstanding the image may have been focussed sharp upon the screen of the camera. This is due to the fact that the *visual* and *actinic foci* of many microscopical objectives are not the same. The actinic is usually beyond or without the visual, and can be found by experiments in making negatives; and when found a note should be made for future reference as to its relative place as compared with the visual, the difference to be shown by the extent of movement of the fine adjustment of the microscope. If the image is blurred raise the tube say two revolutions and make another exposure, or probably much less will be proper, recording results each time until the actinic focus is found. It appears to me that a slip of deep blue glass placed on the stage beneath that containing the object has much to do in approximating, if not entirely uniting, the foci. Dr. J. J. Woodward was, I believe, the first to notice that the use of a meniscus amplifier in the draw tube of the microscope, if properly adjusted, unites the two foci. The use of this adjunct saves much time, especially when a number of objectives

of different powers are to be frequently interchanged, as in making pictures of uniform size regardless of the size of the object, as in lantern slides. It is also claimed that objectives constructed from the new optical glass of Zeiss have the two focii united, and if so the defect will soon be a matter of the past, as all opticians can now obtain this glass.

The *source of light* for illumination is of not so much consequence as it is to have one that is even and uniform in intensity. All things considered I prefer a good lamp with a wick one-half to three-fourths of an inch wide, the edge of the flame toward the concave mirror of the microscope, and with a bull's-eye between. Ordinary diffused daylight is somewhat stronger, and sunlight is many times stronger still, but both have a considerable range of intensity. The latter, however, is to be preferred when a very strong light is desired. Much difference of opinion exists as to the value of electricity as a source of light for photo-micrography.

The removal of the *eye-piece* or retention of it is to some extent a matter of individual preference, as good results are obtained in both instances. To obtain the same amplification without it as with it, is only necessary that the distance between the objective and the plate should be extended, the image being focussed upon the screen in both instances. But when it is desirable to make either very large fields or to magnify the images but a few diameters the eye-piece should be removed. As to *focussing* with low powers the image is always sufficiently distinct upon the ground glass screen of the camera. But in using high power objectives, half inch and upward, it is well to substitute a plain glass for the ground glass screen, using a focussing glass; or a substitute may be extemporized by fitting a watchmaker's one inch eyeglass, or an eye-piece of the microscope into the middle of a strip of wood long enough to rest on the frame of the camera, in which case the plain glass is not necessary.

The *time of exposure* has the widest range. It is regulated by many conditions—quality of light, sub-stage apparatus, color and thickness of object, power of objective, length of tube, power of eye piece, exten-

sion of bellows, and sensitiveness, and other actinic qualities of plate. With a plate numbered about 23 or 24, lamp, concave mirror, and bull's-eye, using condenser of the Bicknell or Abbe pattern with objectives above half inch focus, object of favorable thickness and color, tube ten inches, two inch ocular, and bellows of camera extended five inches, which will give an exposure on the plate of about three inches in diameter, the following table has been formulated after very many experiments.

Objective.	Tube.	Ocular.	Time.
4 inches.	10 inches.	2 inches.	30 seconds.
2 " "	10 " "	2 " "	45 " "
1 " "	10 " "	2 " "	1½ minutes.
½ " "	10 " "	2 " "	4 " "
¼ " "	10 " "	2 " "	8 " "
⅓ " "	10 " "	2 " "	15 " "
⅕ " "	10 " "	2 " "	25 " "

With a one inch or "B" ocular multiply the above times by two; with a one-half inch or "C" ocular multiply by four. Add one percentum for each two inches of extension of bellows. Give one-half less time to bright diffused daylight, and but one-twentieth the time to clear sky and sunlight, as a general rule, they both being subject to considerable variation in intensity. Without ocular less than one-half the time is required.

The time of exposure named contemplates moderately long exposures and the use of a weak developer, especially to begin with. But either less or considerably longer time may be required in many instances.

Two little experiences will illustrate the incorrigibility of the subject. Many exposures of a section of lung injected with carmine gelatine were made before a good negative was obtained, and that with an exposure of eight times the usual time, the yellow and red being slow colors. Difficulty is often experienced by the association of these with easy taking colors in the same subject. An insect presenting such a picture, with its yellow chitinous investment, was the subject of repeated failures as to details. I finally remembered that some one had tried a green light as a unitizer of the actinic variation in colors, with success. The method was placing a green glass slip beneath the one containing the object on

the stage of the microscope. This I did and also added a blue glass slip to approximate the focii of the objective. With the two slips I estimated that the exposure should be ten times the usual time. A bare trace of image was perceptible on the plate whereupon the exposure was prolonged to thirty times the usual time and resulted in a beautifully pronounced negative.

As in ordinary photography the general rule is, though not exact, that colors require more time in proportion to the ascent in the order of the solar spectrum from violet to red.

### BRITISH CURRENCY.

BY C. C. VEVERS.

THE doors of the Photographic Society of Great Britain's Exhibition have once more been closed, and the exhibits once more returned to their respective owners in a more or less perfect condition. I do not propose entering into a lengthy and, to foreign readers, uninteresting criticism on the various pictures there shown, but a few notes on various matters connected with this exhibition may, I think, be found useful. A statistical examination of the frames and catalogue shows that there were some 628 frames hung; of these, as nearly as can be calculated, 495 contained albumen prints, 55 platinotype, and the remainder consisted of bromide, photogravure, carbon, Obernetter, collotype, opals, and alpha (gelatino-chloride) prints, thus showing that the silver-albumen process of the ancients is still worked by the majority of photographers, although the black printing process in general, and platinotype in particular, are becoming more and more popular every day. This is still further exemplified when we see that out of seventeen medals awarded, platinum prints have secured the same number as albumen prints, viz., six each. Three medals have gone to landscape photographers, two to portraiture, four to figure *genre* studies, one to yachting pictures, two to photo-micrographs, two for photogravures, two for theatrical photos, and one for lantern slides. The names of the medalists are Messrs. Harry Tolly, H. C. Pettitt, T. A. Green, W. J. Byrne, F. Muller, H. P. Robinson, P. H. Emerson, F. M. Sutcliffe,

J. B. B. Wellington, W. H. Hyslop, Andrew Pringle, F. E. Evans, Boussod & Co., Annan Swan, J. F. Roberts, G. P. Cartland, F. Müller.

Perhaps this year the most notable feature was the tendency to large direct photographs in black and white, Messrs. Warwick Brook, R. L. Lord, and others showing some remarkable examples of this class of work. Hyslop's yacht studies are, I think, the finest examples of marine photography that have yet been made. This gentleman, an amateur, has made a special study in this direction, and he has, undoubtedly, outdirected all his competitors for his large and perfect negatives. Amongst others he exhibited some views of that defeated boat, the "Thistle," at full sail. Lyddell Sawyer's "Home, Sweet Home" and other *genre* pictures are very clever, and show great artistic discernment. Roberts's theatrical scenes and Cartland's performing elephants at the Olympia, are examples of work by artificial light. W. J. Byrne exhibits several "at home" photographs — the negatives having been taken at the sitters' own residences, show the profession what may be done in this direction without the aid of studio and accessories. Captain Abney shows some beautiful Swiss views; W. Cobb and W. England both exhibit some wonderful bits of instantaneous work in the streets of London. The pictures taken by the latter gentleman having been made from a tricycle. In "The Poacher" Dr. Emerson has hit upon a class of work altogether unique: the picture represents a poacher with his dog on the look-out for game, just as dawn is breaking over the sky in the background; the effect is very clever, showing much study and forethought, but can hardly be pronounced pleasing. There are, of course, very many more pictures worthy of mention, but I have noticed only those that have some novelty in their production or result.

"Adhesive mounts" are one of the latest novelties on this side. Ordinary mounts are coated with a preparation similar to the following:

Powdered Trajacanth	. 120 grains.
Methylated Spirit	. 6 drachms.
Water	. . . 9 ounces.

The mounts when coated with the above mucilage, are permitted to dry and can then be used at any time. The damp print is laid in position on the mount and pressed under blotting paper in the ordinary manner, when it will be securely attached without the troublesome use of a mounting medium.

In these days of amateur photographers and low prices it is strange how unenlightened the general public are on the most simple matters relating to our art. During a recent Yorkshire divorce case ("high-class" divorce cases, by-the-bye, are becoming about as popular as amateur photography), one of the co-respondents on being questioned respecting a photograph in which he appears on very intimate and affectionate terms with the respondent said, "I have been photographed with Mrs. Driffield, but the attitude was owing to the portraits being taken by the instantaneous process (?), the lady's hand being on my shoulder." Even had the picture been taken "by the instantaneous process" and the position accidental, I fail to find any mitigating circumstances in the fact; but probably the lady in question was giving her friend a little good advice and was at the moment of exposure clapping her hand on his shoulder and exclaiming: "Gloss up, old fellah, it's going to go off." This incident reminds me of the old lady who coming into the studio said, "I want a fottygraft of our Jack taking." "Yes'm," said the obliging photographer, looking round for Jack, and wondering if he was a dog or a human being, "Yes'm, have you brought him with you?" "Naw, he's been dead and buried these three months." "Then no doubt you have brought the photograph you desire copied?" "Nay, Jack was never fottygrafted in his life, that's why we want one ov him now." "But, my dear madam, I cannot take photographs of people who have been dead for months—there's a spiritualist studio across the way, better try there." "Why, then, yer great swindlin' thief, take down that notice wot ses 'Fottygrafts of deceased relatives.'"

Mr. Edward Dunmore has communicated

to the Photographic Club an ingenious method of "improving overexposed negatives." It certainly seems practicable, but is, I should imagine, a process requiring attention and care in its use. The negative to be intensified is placed (unvarnished) in a white porcelain dish, a lamp or other light is fixed so that a strong light is thrown upon it, or a glass-bottomed dish with light underneath, would be still better. Solutions of hypo and ferricyanide, or red prussiate of potash, are made in the proportion of five grains to the ounce of water. The two are mixed and poured over the negative, the dish being gently rocked: The process of reduction, which soon sets in, is intently watched, and as soon as the deepest shadows appear quite transparent the negative is removed, and immediately plunged into water and well washed and dried. The next operation is to intensify according to Dr. Monckhoven's plan with bichloride of mercury and cyanide of silver. Mr. Dunmore recommends a cold saturated solution of mercury, at a temperature of 60°; to each ounce of this add twenty grains of potassium bromide. The negative is immersed in this solution until it is quite whitened throughout: it is then washed and placed in a cyanide of silver solution of double the usual strength, until the white image is replaced by a black one, when after a thorough washing the negative is ready for the printing frame.

That many prize photographs in amateur competitions have been the result of good luck rather than good management on the part of the operator, there can be no doubt. An amateur who has practically no limit to time and funds, however careless his manipulative skill or bad his artistic education, is almost sure, if he expose a sufficient number of plates, to occasionally obtain a superior picture, while his less fortunate brother of the black art, who may be much more proficient and have a better knowledge of pictorial effect, may be debarred through business, weather, and other causes from securing the most suitable time and place to photograph, and using the best tools for taking it with. With a view of better testing each member's individual

skill and preventing as much as possible accidental successes, the Birkenhead Photographic Association have hit upon the happy notion of holding a competition by which, on a given day, the members of their society shall meet at a certain rendezvous, and that six exposures *only* shall be made by each competitor, and a resulting print from the untouched negative of every exposure, good, bad, or indifferent, shall be handed in by the competitor, and that the judges shall award medals for the best and second best set of six exposures. This plan is one that might be followed with advantage by other societies—both English and American.

Speaking before the North Surrey Photographic Society, on "the permanence of photographic prints." Mr. H. Starnes described a very severe test he had applied to nearly all the commercial gelatine, platinum, argentotype, and other papers besides some of his own preparation. He made the following remarks which will, I think, interest your readers: "To conclude, I must say that I was thoroughly staggered with the Eastman paper prints. When we think that they had been subjected for nine days to a humid atmosphere of sulphuretted hydrogen which practically destroyed the albumen prints, yellowed the whites of the platinum prints and changed the bromides and others as you see, I am sure you will agree with me that the color of the image on the Eastman paper has actually *improved*, without any loss of density, and the whites have not yellowed. These two latter points are surprising. . . . I feel convinced that there is some secret in the preparation of the Eastman paper that gives it a permanence which, I, for one, cannot obtain with bromide of silver alone, to say nothing of the beautiful rich black image so characteristic of an untouched Eastman print." My own experience shows me the Eastman paper is the easiest to work and the most reliable of any paper procurable, and the results are far superior to any other process I know of, except, perhaps, platinotype, which, however, is complicated.

Surely the world must be turning topsyturvy! A firm of London photographers

have sued a lady for the value of portraits supplied to her order. Now there's nothing strange in this: but the lady's defence certainly is calculated to astound the photographic reader. The defendant declined to take photographs because they had been "touched up," and she did not want to be "flattered and tittivated up!" Moreover, the Judge did not improve matters by admitting that the photograph certainly *did* make the lady look younger than she really was. But as this ought to be a greater inducement for the lady to accept them, he gave judgment for the plaintiff.

Dr. Piffard's magnesium flash light is exciting a great deal of attention over here at present, but not a bit more than it deserves, for this invention opens out another branch of work (photography at client's own homes, at any time of day and in any weather) which the profession will not be slow to appreciate, while the amateur will have an endless fund of evening amusement from its use—which is simplicity itself. In experimenting with magnesium powder and instantaneous combustion, Mr. Armstrong, a member of the Glasgow Association, has discovered a plan which does away with the necessity and accompanying cost of using pyroxylin. This gentleman pours the required quantity—say fifteen grains—of powder into a glass tube, and then blows the powder through a gas flame. The result is said to be even more intense and effective than the gun-cotton method, and, moreover, there is no cast shadow thrown on the sitter by the metal plate holding the preparation as in Dr. Piffard's method.

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## FACTS AND FANCIES.

PRODUCING LETTERS BY THE ACTION OF LIGHT UPON FRUITS.—Our journals have reproduced, coming from a German journal, another forgotten page of the history of photography.

It appears that in the year 1833, there lived at Cassel a good German pastor named Philipp Hoffmeister, who made a curious experiment, and published it in the same year in the *Allgemeinen Anzeiger der Deutschen*,

a weekly sheet that appeared at that time. This experiment consists in taking a sheet of unsized paper and steeping it in a solution of cochineal. This sheet is exposed in a *camera obscura*, and it will be seen that there where the light acts most strongly the coloring matter has faded; an image was thus obtained which was fixed, it is said, by plunging the sheet into a solution of glue.

Many years ago, I mentioned in this *Correspondence*, an experiment made by a French observer, who ornamented peaches and apples in the environs of Paris, by cutting out letters from a sheet of paper, and placing this last on the pink side of an apple or peach, he obtained, on the fruit, the reproduction of the letters; which was done by the action of the light passing through the cut-out portions of the paper.—DR. PHIPSON, in *Le Moniteur*.

**HARD TO PLEASE.**—Recently, the portrait of a lady was the object of a suit in one of the Paris courts. The lady pretended, a very uncommon protest, that this portrait had made her too beautiful. The judges decided that the original was as charming as the copy. The question of resemblance is very difficult to settle when photography is made use of. In proof of which we have the story of the gentleman who had refused to accept his card pictures under the pretext that they were entirely unlike him. The photographer, to be revenged, placed one of the cards in his show window, with this inscription, "This is the biggest fool in all our town." At this, great rage of the gentleman, and reply of the photographer: Since the picture resembles you in nothing, nobody will know it is intended for you, so you have nothing to complain of.

**COLORATION OF COLLODION PLATES.**—M. Ommeganck says that he makes use of the juice of blackberries, when the fruit is in season, to color collodion plates, and that he has remarked that plates thus prepared give more details in the greens of the landscape. He thinks that this product might be used with advantage for the preparation of gelatino-bromide orthochromatic plates. This juice may be preserved by covering it with powdered sugar.—*Bulletin Belge*.

**THE EFFECT OF A MAGNESIUM FLASH.**—Some few days ago, I, with a friend, made some experiments, which should determine, approximately, the visibleness of the magnesium flash at a distance. We stationed ourselves only about 2 to 5 kilometres apart, 4 kilometres south of Potsdam in the woods, and so that, owing to the intervening heights, only the reflection of the flash, and not the light itself, could be seen by the observer.

The experiments resulted unsatisfactory; for in spite of the small quantity of lightning powder used and notwithstanding we were prepared for it, the effect upon us at our chosen distance was startling to us both. So we abandoned the experiment for that evening and agreed to try again at a longer basis of from 20 to 25 kilometres.

The next day, however, we found that we had brought down upon our heads a meteorological sin, for the Potsdamer *Nachrichten* communicated to its circle of readers the following interesting phenomenon.

*Lightning, such as is seen only on sultry summer evenings, was apparent last evening (December) on the south horizon.*

Can it pass for this only in Potsdam, or might it not be also possible elsewhere?—*M. in Photo Zeitung*.

**THE PRODUCTION OF NATURAL COLORS ON THE PLATE.**—When we speak of Niepce and the origin of photography, our thoughts are carried, in spite of us, toward the experiments of his nephew, Niepce de Saint Victor, and of Edmond Becquerel, on the production of photographs in natural colors. We remember perfectly well having visited Niepce de Saint Victor at the Louvre, where we saw the doll gaily dressed in gaudy colors, and the plate on which this skillful experimenter had reproduced this doll with most of the colors of its brilliant costume. It is thus that we ascertained for the first time this incontestable fact, namely, that *the natural colors of objects can be reproduced on the photographic plate*.

Since that time, already somewhat removed, the experiments in this direction have been few and unsatisfactory. We have noted them from time to time in this *correspondence*, and we mention to-day the last that has reached us up to the present time.

It was at the last meeting of the London Photographic Association (November 10th) that Mr. J. Jackson placed before the eyes of the members present a transparent print on collodion, made ten years ago on what was then called "Liverpool dry plate," that is to say, the dry plate made in Liverpool. These plates had at that time a great reputation. The print in question had been fixed with cyanide of potassium, and toned with the salt of gold. Two of the natural colors of the object reproduced are perfectly visible on this plate, namely, the *red* and the *blue*. It is a sunset landscape. The effect of this phenomenon is well rendered by a brilliant red, whilst the distant rocks have a very distinct blue color. The rest of the print is more or less gray. These colors were produced during the development of the plate, or rather during the toning or the strengthening, for the words used by the author are: "The colors developed in toning," and there is no evidence of the application of artificial colors.

From this it seems certain that *these two colors were produced on the plate whilst it was being treated with the gold salt for toning*; and if this phenomenon has been well established, it is a fact of the greatest importance, inasmuch as it gives us the hope that on a certain description of plate, that is to say, on a sensitized surface of a particular nature, *the natural colors of objects are produced during the development or the toning*.

In the former experiments of Niepce de Saint Victor, the colors were obtained by direct exposure, as it is well known, and as soon as an attempt was made to strengthen or to fix them, they disappeared.—*Moniteur*.

UNDER the heading "Photogr. Technik," in the *Archiv*, it is mentioned that in the survey of the India Department at Calcutta, a short time ago, a new transfer paper for photozincographic or photochemigraphic purposes has been prepared. It is not covered, as has been customary, with gelatine, but with arrowroot, which latter is much cheaper than gelatine, and will furnish at least as fine results.

The mixture consists of

Arrowroot . . . . .	40 parts.
Double Chrom. Acid { Potash . . . . .	70 "
{ Kali . . . . .	
Water . . . . .	3500 "

This is spread over the paper twice. After the exposure it is blackened with

Hard Reprint Color . . . . .	100 parts.
Lithographic Crayon Color . . . . .	100 "
Palm Oil . . . . .	7 "

and then washed off with hot water. As for reprint, it is taken on gelatine paper. The arrowroot transfer paper is easily removed from the zinc plate, and gives clear and sharp reprints.

## THE ETHER-OXYGEN LIME LIGHT.\*

BY F. E. IVES.

THE vapor of sulphuric ether has been found to give as good results as coal gas in the production of the lime light. As first employed for this purpose, the ether was vaporized by heat, but this method has always been regarded as troublesome and unsafe. Mr. S. Broughton, of England, tried to improve upon it by dividing the oxygen supply and passing a small portion of it through liquid ether, where it became charged with ether vapor, which it then conducted to the hydrogen side of the jet. There were several objections to this method: the oxygen could not be perfectly saturated with ether vapor in this way, and in a cold room or with impure ether there was always danger of the flame retreating into the saturator; if this occurred, it was almost certain to either burst the saturator and throw the burning liquid about the room, or to force it back into the oxygen holder and produce a still more dangerous explosion. The passage of the gas in bubbles through the liquid also caused the light to flicker so badly that I imagine few operators would have tolerated it. Mr. Broughton sought to overcome the first objection by packing the mixing chamber of his jets with granulated pumice, through which the flame will not readily retreat; but this made it almost impossible to use the light at all in two lanterns, connected through a dissolving key, and, of course, did not stop the flickering. Serious accidents resulted from the use of the wash-bottle saturator,

\* Read at the Stated Meeting of the Franklin Institute, Wednesday, December 31, 1887.

and it was abandoned, after creating a general impression that ether could not possibly be employed with safety. Mr. Broughton afterward used a saturator in which the oxygen was passed over the liquid ether instead of through it, and so stopped the flickering, but did not publish this method for some time. The first published improvement on the wash-bottle saturator was invented and patented by me in 1882. It consisted of substituting for the wash bottle a chamber packed with a porous material, which was saturated with the liquid ether and so arranged that the oxygen was charged with vapor without bubbling through the liquid. This saturator was also provided with a removable cap, which permitted the porous filling to be removed and dried out whenever it became overcharged with the alcohol and water that is always present in commercial sulphuric ether. With this saturator, the oxygen can be perfectly saturated with ether, and is then absolutely non-explosive; the light is also perfectly steady, and can be used with perfect success for dissolving, provided that the jets have small tubes and mixing chambers, and the dissolving key a proper adjustment. It is also absolutely safe, if properly connected with the lantern and oxygen supply, because even with an explosive mixture in the saturator, it is impossible to produce an explosion that will either damage it or throw out liquid ether. As originally placed on the market, this saturator was provided with removable rubber caps, for which the present owners of the patent have substituted a metallic screw cap, which is made to fit ether-tight by applying common bar soap to the screw thread.

The ether light, as produced with this saturator, is now employed by some of the best-known lantern operators in the country, who are enthusiastic in its praise; but in spite of the success and enthusiasm of many, there are some to-day who affect to believe that its use ought to be prohibited as dangerous, and others who are either too stupid or too "smart" to manage it successfully. Members of the Franklin Institute have had ocular demonstration of its success and convenience, as it has been used in illustrating

most of the Institute lectures during the past year; but its greatest advantage lies in the extreme compactness and portability of the requisite apparatus. I will take the liberty to reproduce here some endorsements of the light by well-known men who have used it. Prof. Wm. A. Anthony says:

"With the same pressure of oxygen, the ether light is better than the hydrogen. . . . In the qualities of steadiness, freedom from noise, etc., it is certainly equal to any lime light, and in convenience of manipulation, especially for a travelling exhibition, it is far superior to either hydrogen or house gas."

Dr. John Nicol says:

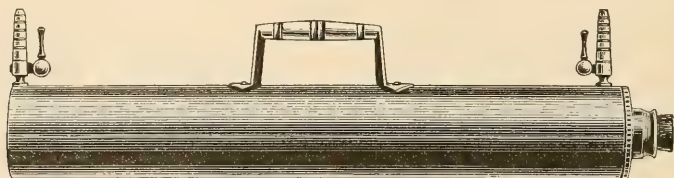
"I have been closely identified with lantern work since 1853, and have used and experimented with almost every method of illumination and every variety of apparatus that has been introduced or suggested, and have no hesitation in saying that the production of an oxyhydrogen light of the very highest class is obtainable with this saturator with absolute safety, and with less trouble than by any other device or apparatus that I have seen."

Notwithstanding the great success of this means for producing the lime light, and the important advantages which it offers, I have always recognized in it certain minor faults, which I hoped to overcome in course of time, and my object in preparing this paper has been to call attention to some recent improvements I have made, which I believe will greatly extend the use of the light, and increase its popularity. The first improvement is in the construction of the saturator, which is reduced in size, yet increased in effectiveness. The second is in the use of petroleum ether, which gives the same light as sulphuric ether, but vaporizes at a lower temperature, costs much less, and contains neither alcohol nor water to accumulate in the saturator.

My improved saturator is in the form of a single metallic tube, two inches in diameter and thirteen inches long, with a handle at the middle and a stop-cock projecting upward at each end. A neck, like that of bottle, projects from the screw cap at the end, and is closed with a cork for convenience in filling. The passage for oxygen

is over twenty inches long, in the form of a zigzag channel through the upper surface of the roll of porous material, and secures complete saturation of the gas with vapor. This saturator can be filled from a bottle in

commercial "petroleum ether" of to-day is a heavier petroleum product, which has been purified by the complete removal of water and resinous matters. It is slightly heavier than gasoline, and its great supe-



one minute, and is ready for use at once, or may be kept filled for any length of time. It will supply a pair of lanterns, connected by dissolving key, for two hours continuously.

Petroleum ether costs only thirty cents a pound, which is less than half the price of sulphuric ether. It should be stored in a cool place and kept tightly corked. It is also necessary, when using it with oxygen from a cylinder, to use a valve that can be opened very slowly, because a very small amount of oxygen passing through the saturator will produce a very large flame at the jet; the Shaw valve, manufactured by Mr. Shaw, a member of this institute, fulfils the requirements, and is already largely used in this city. Some special instructions for the management of the light in hot weather may also be called for. Upon opening the saturator stop-cock in a warm room, a small amount of ether will vaporize spontaneously, and should be allowed to escape at the jet before turning on the oxygen supply; before the light has been run a minute, the vaporization will have become perfectly regular.

In conclusion, I give it as my opinion that this improved means for supplying the hydrogen element is so much simpler and more convenient than any other, that it cannot fail to entirely supersede the use of hydrogen and coal gas when its merits shall have become generally known and appreciated.

NOTE.—The terms "petroleum ether" and "rhigolene" have been used by some authorities to denote the same thing; but Mr. Charles Bullock informs me that the

priority for lime light purposes appears to result from the removal of the water, which is present in considerable quantities in gasoline and benzine. Its use is permitted in some places where rhigolene and gasoline are prohibited.

### OUR PICTURE.

FEARFUL of surfeiting our readers with one line of pictures for a number of months, we break into the "prize-takers," series for the present occasion and offer something different.

Six negatives have been used by Messrs. Roberts & Fellows for printing, some of which are of two dainty little maidens, and the others of one only. In all cases the subject bears out the title "Fairy Dance" given by Mr. G. Cramer, from whose studio in St. Louis the negatives come. We have for some time desired to show in this way, how much could be done with modern lenses and modern plates, to secure instant pictures under the skylight. Expressing our desires to some friends one day at the Chicago Convention, Mr. Cramer and Messrs. Allen Bros., of Detroit, American Agents for the famous Suter lens, took up the gauntlet and agreed to produce six negatives consecutively, equally uniform in quality, and first-class in every way. We do not see how loyal and valiant knights of the camera could have produced anything more satisfactory. To secure almost in mid-air, such well-timed negatives of these youthful fairies, posed—nay balanced—as they are in such graceful attitudes, so difficult to maintain for an instant, is cer-

tainly masterly work and deserves the greatest praise.

With reference to the production of the plates Mr. Cramer writes as follows :

"We made the six negatives with the A. No. 3 Suter lens, second stop  $1\frac{1}{8}$ " diam.

( $\frac{f}{10}$ ) and Cramer No. 40 plates. Exposure less than one-quarter of a second, as quick as we could work the pneumatic shutter by merely giving it a tap. I think the results will speak as well for the lens as for the plates used.

"The little girls are Myra Opel and Susie Landers, both of our city. As a title, I would suggest 'Fairy Dance.' I hope the pictures of the charming little girls, taken on the fly, will please you and your readers.

"The A. No. 3 Suter is a fine lens of about sixteen inches equivalent focus. We have made good instantaneous work with it out-of-doors, and good interior views up to 10 x 12 inches."

It was our hope to present in the same issue with the "Fairy Dance," a paper giving the details of the construction of the Suter lens, and some interesting points relative to their manufacture. But we ask your patience awhile longer for this. Every one of our readers can see what excellent work can be done by a lens of moderate price. As to the plates, everyone has Mr. Cramer's formula. What it does not give must be supplied by the *mind* which directs the development. As to the whole production, there is nothing in the way of everyone doing just as well with the same sort of means. The prints of lovely surface and tone were made on the celebrated brand of Dresden paper, imported by Messrs E. & H. T. Anthony & Co., and known as the N. P. A.

## THE WORLD'S PHOTOGRAPHY FOCUSSED.

*Der Photographische Mitarbeiter* is writing a series of biographical essays on "Our Masters." A recent one gives the picture of Johannes Jaeger, who began at the A B C of photography, and advanced through its various departments till he is now royal court photographer, and photographer of the National Museum at Stockholm.

This journal contains many articles written in pleasing style.

THE *Deutsche Photographen Zeitung* has for its November illustration four pictures of the same model. The original one is a colored picture of a young lady; the second one is the same subject taken on an ordinary emulsion plate; the third is taken on a plate bathed in erythrosin (with yellow disk); and the fourth is done on an erythrosin silver and chinolin-red plate (without yellow disk). Comparison can be easily made and is in favor of the last.

THE November *Archiv* writes a pleasing article on the one-hundredth return of Daguerre's birthday and its consequent reminiscences.

Among the receipts given in this excellent journal is the following, by Dr. Eder :

### No. 1.

Brom. Potassium . . .	8 grs.
Distilled Water . . .	20 c.cm.
Nelson's Gelatine No. 1. . .	1 gr.
Carbonate of Ammonia . . .	1 "
Iodide of Potassium . . .	0.2 "

### No. 2.

Silver Nitrate . . .	10 grs.
Distilled Water . . .	40 c.cm.
Nitric Acid Solution, 10 per ct. . .	2 drops.

### No. 3.

Alcohol, 95° . . .	50 c.cm.
Ammonia . . .	4 "

Temperature 20° C.

Add No. 2 to No. 1 first, and mix them thoroughly, then add No. 3, shaking it all the time. The emulsion must stand in the ordinary temperature of a room eight hours. Finally add a warm solution of

Gelatine . . .	18 grs.
Water . . .	120 c.cm.

and make the emulsion ready by using alcohol, or letting it stiffen and then wash with water.

## PICTURE OF CHILDREN.

THE photographer who is "smart" accepts, early in his experience, the truths of the old ambrotype saw, "get the babies good and the older ones are yours." Once he has mastered himself sufficiently to rest and live on this belief, he has come into possession of a most useful means of grace—a means that will be of great service to him.

We imagine, when we make our editorial calls, that we can always tell whether the victim of our visit has accepted this means of grace or not, before we see him, because the display of infantile pictures at his door tells us before hand. If he has the means, he is sure to be a happy subscriber to the *PHILADELPHIA PHOTOGRAPHER*, and a reader of *Quarter Century*. If he has not, it is useless for us to solicit his patronage—that man “knows it all”—he “never has time to read.”

We are often entertained by our friends when we have the privilege of seeing them wrestle with the little ones. There is a marvellous difference in the methods adopted and the greatest variety and contrast in the tact displayed. One of the most successful baby-catchers we know, is our amiable neighbor, Mr. G. G. Rockwood, of “triplex” fame. No one but a baby lover and a successful baby photographer, would give utterance to a “triplex” suggestion, that is certain. One sunshiny day, a week or so ago, we called upon him for a consultation in an art-matter concerning all our readers, and found him beset by as long a line of babies as we ever saw awaiting their turn at a baptismal font in the old Cathedral of Florence. Of course we insisted upon taking our turn with the others, and while we sat waiting and smiling upon our friend to keep him in *the means of grace*, our mind ran back to the happy days of yore had in the aforesaid Florence; then to the announcement of the Photographers' Association of America, that “Hiawatha,” by H. W. Longfellow, was to supply the material for the next Blair-cup competition; then to our visit to Minnehaha Falls, many years ago, with that other kindly veteran, John Carbutt (yes! the plate-maker); then to the next Convention at Minneapolis, where all who take a camera may go up to Minnehaha Falls and illustrate Hiawatha, and compete for the Blair Cup to their heart's content, with natural accessories “throw'd in,” minus Mudjekéewis and the other Indians; and, then—we fell asleep and dreamed of Mr. Rockwood and the babies. He was enjoying himself immensely. He was illustrating that other sublime creation of Longfellow's, called “*To a Child*,” giving one

more evidence of his shrewd tact, and individuality, in taking advantage of circumstances. Some of his “successes” were very *apropos*, and are loaned by him for this occasion. The lines run as underneath:



“Dear child! how radiant on thy mother's knee,  
With merry-making eyes and jocund smiles,  
Thou gazest —”

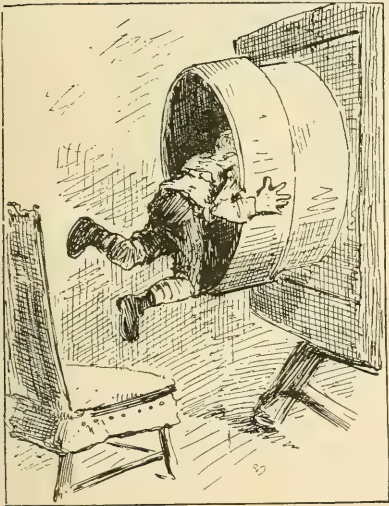


“And, restlessly, impatiently,  
Thou strivest, strugglest, to be free.”



—“rejoice

With the joy of thy young heart,  
O'er the light of whose gladness,  
No shadows of sadness,  
From the sombre background of memory start.”



“But what are these grave thoughts to thee?  
Out! out! into the open air.  
Thy only dream is liberty,  
Thou carest little how or where.”



“What! tired already! with those suppliant looks,

And voice more beautiful than a poet's books,  
Or murmuring sound of water as it flows,  
Thou comest back to parley with repose!”



“By what astrology of fear or hope  
Dare I to cast thy horoscope!  
Like the new moon thy life appears;  
A pale and feeble adumbration  
Of the great world of light, that lies  
Behind all human destinies.”

This last was too much. Morpheus made his departure, Minnehaha, "Laughing Water," had ceased to ring—and we awoke. The long line had disappeared with the exception of one baby, and there he sat, meekly, humbly, quietly, gracefully, "just too lovely for anything"—"for the protection of the public."

query of where to obtain them, the reply has not, until now, been so readily given.

The only copy that ever came under my observation belonged to a friend, whose kindness in leaving it a long time in my possession was some compensation for the failure to secure one of my own.



For the protection of the public.

If Mr. Rockwood passes many such ordeals and "triplexes" on every one, we do not wonder at his amiability.

### BURNET'S ART ESSAYS.

BY ENOCH ROOT.

In a connection of some thirty years with art interests, the question has frequently been broached, not only by students, but by advanced artists, "What is the most practical instruction book on the principles of art?" My invariable answer in recent years has been, "the Essays of the celebrated English art writer, John Burnet." To the next

It was, then, with sincere pleasure I heard that the beautiful volume recently issued by Edward L. Wilson, contained a reproduction of these invaluable essays. It was placed in my hands by Mr. Gayton A. Douglas.

It is a most priceless boon to students in all branches of art; to the painter, to the designer, to the critic, and to all persons desiring a concise, methodical, and exhaustive text-book on the general principles of art, as exhibited in the works of great masters.

The subjects treated are on composition light and shade, and, under the general heading of education of the eye; lineal and arial perspective, chiaro oscuro, invention, ar-

rangement, harmony, form, studying from nature, etc.

One of the most valuable features of this work, and, wherein it is superior to all others, is its numerous illustrations. They are here reproduced by photo-lithography, from the wood-cuts, and copper-plate etchings of the original.

Thus, each leading principle has not only its letter-press explanation, but one or more appropriate pictorial examples, selected from the master's. These powerful object lessons cannot fail to be understood by the most obtuse intellect.

There are many learned writers on art from Leonardo De Vinci, down through Prudhon, Fuseli, Reynolds, Taine, Ruskin, Hamerton, and others, yet, much of their writings are based upon the supposition that their readers are acquainted with the leading principles of art. If they are not so, much that is best and instructive, is obscure, or lost, by the uninformed reader.

No person of taste in literature or art can fail being fascinated with the wonderful word-painting of John Ruskin. He is the prose poet of Art. But one page of these essays contains more practical knowledge of art to the student than a whole volume of Ruskin's *Modern Painters*.

For inspiration to a love of nature, consult Ruskin's chapters on "Clouds or Mountains," but to learn how to render them pictorially by brush or camera these practical lessons of Burnet's are necessary; as they are also useful as a key to unlock many of the mystical utterances of this oracular critic and other writers on theoretical art.

Many of our photographic artists are striving for a more complete development of the art features of their profession. To such, a knowledge of the rules of composition, and light and shade are indispensable. In this essay of Burnet's, on the latter subject, the plates illustrating the management of light and shade will be found particularly instructive and of uncalculated value, drawn as they are from so many examples of the old masters; the most distinguished in this direction, from Rembrandt, Vandyke, Titian, Teniers, Claude Lorraine, Cuyt, Ostade, Wovermann, Metz, Terburg, etc.

The scope of such a work as this derives

its value from the intelligent selection and separation of the true from the false in art. It must, from its nature, be something of a complication. The rare discrimination of this writer, and his sound judgment has given us in these essays the very best and most valuable ideas on all the vital principles of art production; principles which made Raphael, Angelo, De Vinci, Titian, Rembrandt, Rubens, Vandyke, and others superior to thousands of lesser artists, and which are here definitely pointed out, and their merits graphically given as models for our imitation.

Dame Nature is the great teacher of art. But her vast field is a labyrinth in the intricacies of which the student will soon be lost without a guide. These clearly-defined essays will lead him surely, not only along the easy stages of the main road, but into and through the most winding mazes of its infinite domain. Without such a mentor we can never *truly see* her beauties in a way of pictorial illustration, and, perhaps, would grope blindly along for many precious years, when the possession of this work would give an immediate clue.

As there are only 500 copies of these *Essays* in print, it would be surprising to find any of them on sale for any length of time. There are many hundreds of our photographers, to say nothing of the painters, who cannot afford to lose this opportunity of supplying themselves with this superb text-book, one that will return them a hundredfold on a small expenditure.

In to-day's literature of art, this work, as an exponent of general art-principles, is a fitting companion to the *Quarter-Century* in its special field.

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## SOCIETY GOSSIP.

LYNN CAMERA CLUB (Lynn, Mass.).—At the adjourned meeting of the Club, held on Friday, January 13th, Mr. G. D. Milburn, of the Eastman Dry Plate and Film Company, gave a very interesting demonstration of the uses of bromide paper, film negatives, and trans-ferrotype paper. The demonstration was a perfect success, all of the members present being intensely pleased

with the ease and beauty of the different processes.

After the demonstration, the Club was called to order by the President, when officers for the ensuing year were elected, as follows :

*President.*—W. H. Drew.

*Vice-President.*—W. B. Gifford.

*Secretary.*—O. T. Dewhurst.

*Treasurer.*—E. F. Bachelder.

*Librarian.*—E. F. Bachelder.

*Executive Committee.*—W. H. Drew, O. T. Dewhurst, W. B. Gifford, E. F. Bachelder, and J. W. Darcy for one year ; Theodore Hoyt for two years.

It was moved and seconded that a vote of thanks be sent to the gentlemen who have kindly donated books or papers to the Club.

The regular meeting night of the Club is the first Tuesday in each month, unless that day is a holiday, when the Tuesday following shall be the meeting night.

O. T. DEWHURST,  
Secretary.

**THE ANNUAL EXHIBITION BY THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.**—The annual exhibition of lantern slides, the work of members of the Photographic Society of Philadelphia, was given on Wednesday evening, January 11th, in Association Hall, and was attended by a large audience. Dr. Ellerslie Wallace, who explained the pictures, said, in introducing the evening's entertainment, that, while the past year has not been marked by any remarkable advance in photography, there had been a steady growth in the application of the science to produce pictorial effect. He added that, in this respect, the slides submitted by the members, representing the work of the past year, formed the finest series of the sort which he remembers in his twenty-five years' experience in photography.

The slides shown were varied in character, including views taken with the detective camera, landscape and marine studies in different parts of the world, genre pictures, portraits and genre pictures taken by means of the artificial light compounds, some specimens of photo-micrography and some

illustrating the value of orthochromatic plates.

The members whose work was represented on the screen numbered about thirty, and the pictures were uniformly fine.

**THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.**—The twenty-sixth annual meeting of the Society was held Wednesday evening, January 4, 1888, with the President, Mr. Frederic Graff, in the chair.

A circular was read announcing that the Second Annual Exhibition of the combined work of the Photographic Society of Philadelphia, the Society of Amateur Photographers of New York, and the Boston Camera Club, would be held in Boston, in March next, under the auspices of the latter society. Members were urged to prepare exhibits which would worthily represent the Society, and to have them ready for forwarding by the date which would duly be announced in a future circular containing rules, etc.

The exhibition of lantern slides, at Association Hall, on January 11th, was declared both financially and technically successful, a large audience being present.

The election for officers and committees for 1888 resulted as follows :

*President.*—Frederic Graff.

*First Vice-President.*—John G. Bullock.

*Second Vice-President.*—Joseph H. Burroughs.

*Secretary.*—Robert S. Redfield.

*Treasurer.*—S. Fisher Corlies.

*Executive Committee.*—Herbert M. Howe, M.D., Ellerslie Wallace, M.D., William A. Dripps.

*Excursion Committee.*—Charles Barrington, Samuel Sartain, Joseph H. Burroughs.

*Committee on Membership.*—Henry T. Coates, William A. Dripps, Galloway C. Morris, David Pepper, Edward W. Keene, William L. Springs, Joseph H. Burroughs, John Bartlett, George Vaux, Jr.

*Committee on Revision of Minutes and Articles for Publication.*—John C. Browne, John G. Bullock, Robert S. Redfield.

The President, in acknowledgment of his reelection to office, made an address to the members. Among other things he said :

"I cannot pass on without reference to

the fact of the Society having so pleasantly celebrated the twenty-fifth anniversary of its organization. Much may be said of the want of stability in silver prints and other such work in which we deal, but the claim of want of stability certainly cannot be urged against a society that occupied for its abode and meetings the same room for a period of twenty-two consecutive years; and is fortunate enough to retain and reflect this evening for the twenty-sixth time its worthy Treasurer, who has faithfully watched over its finances for so many years.

"On the festive occasion referred to, I had the pleasure to welcome a number of those who with myself were present at the first meeting for organization.

"It is good testimony of the attractiveness of our work, to be able to say that I found them still, after twenty-five years, as ardent and enthusiastic in pursuit of the enjoyments and wonders of our art as in by-gone days."

Mr. John C. Browne called attention to the new Welsbach incandescent gas light as likely to have valuable uses in photography. He briefly described the light as being produced by a tubular piece of woven fabric about two inches long, which was treated with certain chemical substances, and afterward baked so as to practically destroy the fabric itself. The tubular "mantle," as it is then called, is suspended within a glass chimney by means of platinum wire over a Bunsen burner.

At a low gas pressure sufficient heat is generated to produce an intense white incandescence in the mantle similar to electric light. Where such a white light is objectionable, the color may be modified by the use of suitable chemicals in preparing the mantle. A powerful company is now preparing the burners for the market, and they will probably soon be offered for sale.

Mr. William Bell proposed a method of treatment for lantern slides on gelatine plates as follows:

For contact slides on Carbutt's A or B plates, commence developing with an old filtered ferrous-oxalate developer, prepared as for Eastman's bromide paper, adding a little freshly mixed developer from time to time. The formula consists of:

a. Potassium Oxalate . . .	1 pound.
Hot Water . . . . .	3 pints.
b. Iron Proto-sulphate . . .	1 pound.
Hot Water . . . . .	1 quart.
Citric Acid . . . . .	$\frac{1}{4}$ ounce.
c. Potassium Bromide . . .	1 "
Water . . . . .	1 quart.

Mix *one day before use*, 4 ounces a, 1 ounce b, and 30 drops c. The best results are obtained with developer one month old, adding a little freshly made, as above stated. After use, bottle and filter before again using. Develop until the highest light begins to color; wash, *fix well*, and wash *until all hypo is out of the film*. If this latter washing is not thorough, the slide will be ruined in the next operation.

The slide is then immersed in the following solution:

Mercury Bichloride . . .	1 ounce.
Ammonium chloride . . .	1 "
Water . . . . .	10 ounces.

Dissolve and add 15 grains chloride of gold. For very weak positives, the full strength can be used. For stronger ones, dilute to one-half. When whitened by this solution wash well and flow with:

Water . . . . .	10 ounces.
Liq. Ammonia . . . . .	1 to 2 "

which will blacken it again, producing proper intensity and a desirable tone.

If the positive has had too short exposure to the light, the above will make it too black and white. Correct exposure only will give harmonious results.

Mr. Carbutt referred to a statement made in recent number of *Anthony's Bulletin*, by Mr. Henry J. Newton, to the effect that the slow gelatine plates usually recommended for lantern slides were not the best for the purpose. To obtain softness and atmospheric effect, he thought quicker plates were required.

Mr. Carbutt thought that with the ordinary run of negatives, quick plates would cause a great percentage of loss. Acting on the requirements of the majority of slide makers, he was now making his plates for this purpose even slower than heretofore. To make a good slide on a quick plate, a good strong negative is necessary. With a weak negative the slide will lack brilliancy.

## PERTAINING TO THE



The Executive Committee of the P. A. of A. assembled at the Southern Hotel, St. Louis, Mo., January 11th, at 10 A.M., President Decker in the Chair.

There were present: E. Decker, W. H. Potter, G. M. Carlisle, C. W. Motes, F. W. Guerin; and officers of 1887 as follows; G. Cramer, James Landy, C. Gentile, and W. H. H. Clark.

Mr. Decker upon taking the Chair said that the first business in order was the reading of the Secretary's report; the same, with the Treasurer's report, was read and referred to the Auditing Committee, C. W. Motes and F. W. Guerin.

A motion was made to change the location of our next convention from Minneapolis to Detroit. The motion was unanimously negatived.

In order to encourage a large attendance at our next convention Mr. Cramer offered a prize of \$100 cash to be allotted as follows: Numbers beginning with 1, and corresponding with numbers upon the receipts for dues, shall be placed in a box, and the first number drawn therefrom shall win the prize, provided, however, that the holder thereof shall be in attendance. If the holder of the lucky number shall not have attended the convention, another drawing shall be had, and so on, until a receipt shall be personally produced, corresponding with the number drawn.

The drawing shall take place at the close of the second day's session.

Mr. Motes moved that we accept Mr. Cramer's liberal offer with thanks.

The Auditing Committee reported the books of the Secretary and of the Treasurer correct.

The report of the Local Secretary, C. Gentile, was read, whereupon it was ordered that the Local Secretary be paid the balance in his favor of \$44.39. The bill of \$31.21 presented by E. & H. T. Anthony & Co., for expenses on account of the foreign exhibits was approved and ordered paid.

President Decker, considering the number of officers in the immediate neighborhood of St. Louis and the saving of time and expense called the Executive Committee in session here, with the expectation of sending a committee of two, later on, to Minneapolis to make the necessary arrangements.

On motion it was ordered that Mr. G. M. Carlisle and W. H. Potter go, as soon as possible and convenient, to Minneapolis, select the halls, and make all arrangements for holding the next convention some time in July, 1888.

The Secretary was made a committee on railroads.

Committee on Stationery: The Secretary and Treasurer.

On Foreign Exhibits: B. French & Co., E. & H. T. Anthony & Co., G. Gennert.

On Progress of Photography: W. H. H. Clark.

On Stenographer: G. M. Carlisle.

The programme adopted contains no novelty.

## PRIZE MATTERS.

*Exhibits.*

Each exhibitor is limited to six pictures in any one class.

All entries must be made on, or before the day previous to the opening of the convention. Application by mail shall be considered an entry.

*Resolved*, That the executive committee shall appoint one judge, the competing exhibitors one, and these two the third judge, and these judges shall award the association prizes. The names of the competing exhibitors' choice shall be handed to the secretary before the close of the first session, otherwise the executive committee shall appoint all the judges.

*Prizes for Exhibits by Members of the Association Residing in the United States and Canada.*

Class A., Portrait Photography. Any

size not less than 13 inches in length. 1 gold, 1 silver, and 1 bronze medal.

Class B., Genr Pictures. Not less than 13 inches in length. 1 gold, 1 silver, and 1 bronze medal.

Class C., Portrait Photography. All sizes less than 13 inches in length and larger than cabinets. 1 gold, 1 silver, and 1 bronze medal.

Class D., Cabinets. 1 silver medal and 1 bronze medal.

Class E., Landscape Photography. 1 gold, 1 silver, and 1 bronze medal.

Class F., Marine Views. 1 silver and 1 bronze medal.

Class G., Interiors. 1 silver and 1 bronze medal.

Class H., Architectural Photography. 1 silver and 1 bronze medal.

Class I., Transparencies. 1 silver and 1 bronze medal.

Class K., Photography applied to Science. 1 silver and 1 bronze medal.

Class L., Plain Enlargements. 1 gold, 1 silver, and 1 bronze medal.

Two silver medals shall be provided to be awarded by the executive committee for such improvements, inventions, or discoveries, as shall be deemed worthy of such recognition.

#### *For Foreign Exhibits.*

For best exhibit of portrait photography. 1 gold and 1 silver medal.

For best exhibit of landscape or marine views. 1 silver and 1 bronze medal.

The Secretary shall furnish each member of the awarding committee a list of all competing entries certified to by the treasurer, that all such competitors are members of the Photographers' Association of America, and not in arrears for dues.

The Secretary shall also furnish each of the judges a schedule of prizes to be awarded, and the necessary instructions as ordered by the executive committee as follows:

#### *Instructions to Judges.*

Each Judge shall separately make his examination of the competing exhibits and decide upon the merits of the same, giving in each class No. 20 as the best, No. 19 to the second best, and so on according to the number of medals offered.

The Awarding Committee shall have a special meeting before the Friday morning session, combine reports, and come to a final conclusion by striking an average, and awards shall be made accordingly.

#### BLAIR CUP.

*Subject for Competition.*—"Hiawatha."

The winner of the cup shall sign an agreement to take and hold the cup subject to all the rules and conditions made by the donor thereof and the executive officers of the Association.

*Rules to be Observed by Competitors for Association Prizes.*

1st. All competing exhibits must be from negatives made since the Chicago Convention, August, 1887.

2d. Any person desiring to compete for prizes must remit dues to G. M. Carlisle, Treasurer, Providence, R. I., on or before making entries.

Members, annual dues, two dollars.

New members, initiation fees and dues, five dollars.

The Treasurer shall furnish the necessary blanks for entries, which must be filled and forwarded to W. H. Potter, Secretary, Indianapolis, Ind. All entries are to be in the hands of the Secretary the day previous to the opening of the Convention.

No exhibit shall be received unless the freight or express charges shall have been paid by the owner.

*Resolved*, That the exhibition of photographs connected with our Convention shall be considered an art exhibition, pure and simple; and, in order not to detract from this standard, be it

*Resolved*, That no sign of any description shall be allowed in the halls devoted to the display of photographs, except one card to every exhibit; said card not to exceed twenty inches in length, and to contain only the name and address of photographer whose work it represents.

*Resolved*, That any picture may have its title, or subject, neatly inscribed thereon, but nothing of an advertising nature shall be permitted. Each picture shall be marked with a letter signifying the class in which it competes, and duplicates of said picture shall be excluded from any other class.

All exhibits must remain on exhibition until the close of the Convention.

*Resolved*, That Vice-President F. W. Guerin shall have charge of the art department, and shall be charged with the duty of removing all objectionable features, and see to the enforcement of these rules.

*Resolved*, That a certificate shall accompany each award.

Committee on Medals and Certificates, F. W. Guerin, E. Decker, James Landy.

#### *Dealers Department.*

Proper arrangements shall be made for the dealers. The price for space will be hereafter announced. No dealer shall be permitted to transact business in the stock department without securing space for that purpose.

The following committee was appointed by the Chair to formulate a plan of life insurance, and report to the Minneapolis Convention: G. M. Carlisle, C. W. Motes, W. H. Potter.

It was moved and carried that the Treasurer's bond be fixed at \$2000.

The President is authorized to appoint a practical photographer as delegate to the International Congress, to be held in Brussels, Belgium, in 1888, without expense to the Association.

A cordial invitation is hereby extended to all foreigners connected in any way with photography, to attend our Ninth Annual Convention at Minneapolis.

W. H. POTTER,

Secretary Executive Committee.

In order that parties interested should have full information as to all rules and regulations in connection with the Blair Cup, the following is subjoined, as adopted at the Chicago Convention, 1887.

"It was then moved and seconded that the following rules and conditions be adopted to govern the competitions for the Blair cup.

1. No picture having been previously entered in competition shall be allowed to compete for this cup.

2. Nothing of an advertising nature shall be permitted to be used in these competitions.

3. The award shall be made by a com-

mittee of three to be appointed by the Executive Committee.

4. The Executive Committee shall select a subject each year to be illustrated, and no other picture shall be eligible.

5. The award shall be made for the most meritorious photograph illustrating the subject selected the year previous.

6. The winner shall be custodian of the cup until the next convention.

7. It shall be necessary for the cup to be won twice by the same person before it becomes his property.

8. In the event of the cup not being won twice by the same person after having been competed for three times, it shall become the property of the Association to be disposed of as the Executive Committee shall determine.

7. Sections 4 and 5 of these rules shall not apply to the first competition, 1887, for the cup.

Carried unanimously August 7, 1887.

G. CRAMER,

President.

H. S. BELLSMITH,

Secretary.

DEAR SIR: I see that the title "Hiawatha" has been chosen for the Blair Cup contest this year, by the Executive Committee, and as nothing was said about what would be allowable in the picture I think a great many of us will want to know whether *more than one figure* may be used in the composition, and, whether there will be any limit (large or small) as to size, and also whether a frame would exclude the picture from the competition?

For my part it seems to me that it ought to be in every way a "go as you please" race. 1st. There are thousands of photographers in the country who have no cameras larger than 8 x 10 and some of them are good photographers, too. 2d. As to the number of figures many may find that they can best get at the real meaning or *feeling* of the great Indian poem by using a group of two or more figures. 3d. No picture is really finished until it is appropriately framed. One for this exhibit need not cost very much. Truly yours,

CHAS. BUTTERWORTH.

WILMINGTON, O.

## Editor's Table.

DR. CHARLES M. MITCHELL, of Philadelphia, has been elected Vice-President and a Director of the Blair Camera Co. An excellent choice.

ARISTOTYPE PAPER has been described and formulæ for working it given in our magazine several times. It is nothing new and no agency or firm has any good reason for claiming to be "exclusive manufacturers" or "agents." It was formerly known as collodio-chloride paper and its use was abandoned because of difficulties in working, and the surface crackled and the picture peeled off. The tones are lovely and the surface very bright. Dr. Liesegang, of Dusseldorf, Germany, makes collodio-chloride paper and calls it "Aristotype." It will not displace albumen paper, so far as we can see.

"CAMERA CLUB."—This should be the universal name for all photographic societies instead of the long local titles of some. Then they should be numbered, as Masonic and other lodges are. Say Camera Club No. 40, Hartford, Conn., etc. Then a central club should be agreed upon, say in New York, where all the rest could join in sustaining a library; a museum; a club-room and dark-rooms, and to which appeal could be made for all sorts of information and help. Do not let it be "amateur" altogether, but let the adepts combine for the good of all. We shall have more to suggest presently. Meanwhile we invite agitation.

QUARTER CENTURY IN SCOTLAND.—MY DEAR SIR: What a grand and workable book you have now so kindly and safely sent me in your *Quarter Century in Photography*. For the said book has arrived most safely, is handsomely bound, titled on both back and front board, is portly, and, as all new books should be, though so few are in this part of the world—cut smooth all round the edges, so that it is ready at once to be devoured by the eager reader. That, indeed, is the American method of turning out new books, and for which Americans deserve the daily blessings of readers in all parts of the world; for with the increasing multitude of books, who can spare time enough to cut them up with a paper knife alone and then they are so badly cut and left so roughly edged by that instrument. But your book is a model to the world, and the old world especially. And then how admirably you have

fulfilled the vows and aspirations of your youth as to the subject, for you have grandly lifted it, and all belongings to it out of the low level of shoe-making and circus-riding, and given the learned a volume which will require their best efforts fully to digest. Of all the chapters, I think I prefer that on "outdoor operations" best. There are some grandly artistic ideas there, and such as poet and painter can appreciate, as well as photographer. Besides which open-air work will keep you healthy and vigorous for still further triumphs in your chosen life. I remain, with very best thanks,

Yours very truly,

C. PIAZZI SMYTH.

15 ROYAL TERRACE, EDINBURGH.

I ENCLOSE you \$5.00 for a continuation of the PHILADELPHIA PHOTOGRAPHER for 1888. I expect to receive, during the year, about fifty dollars' worth of information. This, you see, will be a good investment for me, and I hope it will turn out well for you. Your friend of many years, E. M. VAN AKEN, Elmira, N. Y.

BOSTON is one of our strongholds. Mr. J. ALCOTT PRATT, one of our old patrons there, writes: "I send \$5.00 for the PHILADELPHIA PHOTOGRAPHER, without which no photographer should exist." Boston always *will* have the artistic and literary *best*.

THE editor of the *St. Louis Practical Photographer* has supplied us with a bound copy of the 1887 volume for our office use. The pictures, the letter-press and all are excellent, and it is the handsomest and best volume ever issued by our hard-working and earnest contemporary. If you have not the volume you should secure all the numbers before they are out of print. Only \$3.00.

MR. A. E. RINEHART, Denver, Col., opened his new establishment on December 27th, and receives deserved praise and commendation from the local press for his good taste and enterprise. The *Daily News* says: It is seldom that a more select and appreciative audience is assembled than that which met at that time to congratulate Mr. A. E. Rinehart on the opening of his beautiful new quarters, and also to look through the well furnished and finely appointed rooms. From early in the evening until late at night there was almost a constant throng of visi-

tors, and each and every one was more than delighted with the elegance of the gallery and the unexcelled arrangement of the rooms.

With Messrs. Lehman, Noble, Nast, Mrs. Lehman and Miss Mack as assistants, Mr. Rinehart will be able to please even rapidly æstheticising Denver.

MR. C. C. VEYERS, Horsforth, Leeds, England, supplies us with some valued points in this issue. Mr. Veyers is a distinguished photographer and manufacturer of photographic specialties. Those having foreign commissions can safely trust them to him.

A MISTAKE CORRECTED.—Owing to a concatenation of circumstances springing from the too common habit of authors forgetting to sign their articles, the article on "Enlarging on Argentic Paper," in *Mosaics*, 1888, was credited wrongfully to Ex-Sec. H. S. Bellsmith instead of to Mr. James Inglis who is the author. The readers of *Mosaics* have nothing to regret, but we feel a little undeveloped about it.

MR. WALTER E. WOODBURY, the talented son of our lamented friend the late Walter B. Woodbury, has entered business for himself (W. Woodbury & Co.) at 38 Wray Crescent, Holloway, N. London, England. Photo chemicals and apparatus are his specialties. We recommend him heartily to our friends and wish him great success.

MR. JOHN E. RICHARDSON, of Germantown, Pa., lost his life by the explosion of ingredients he was mixing with a chaser-wheel for the purpose of making a magnesium-light powder. The ingredients were chlorate of potash, bichloride of potash, picric acid, and magnesium. Beware.

"THE PHOTOGRAPHIC SOUVENIR" sent out during the holidays by Mr. and Mrs. Wm. R. Wright, Princeton, Ind., consists of a prettily printed cabinet card with border-enclosed stamp-portrait, underneath which is the very pretty dedication which follows to

#### THE PHOTOGRAPH.

O, thou frail thing of beauty,  
Thou child of the bright blazing sun;  
Tell us, O tell us thy duty  
And wherefore to man hast thou come?  
I come to gladden the lover,  
E'er his bride is all his own;  
To comfort the heart of the mother  
Whose babe the angels have won.

My mission is bright as morning,  
I deign the whole world to please;  
I set the young heart bounding,  
I comfort the old heart that grieves.

Where in my journeys I wander,  
In all lands under the sun;  
To the wise I'm guest and a wonder,  
To fools I'm silent and dumb.

W. R. W.

OUR sympathies go out to our friends from whom the following comes:

CHICAGO, January 9, 1888.

GENTS:

On Saturday, January 7th, we suffered a very severe loss by fire, our factory being entirely destroyed. This embarrasses us to a certain extent in the prompt filling of orders. The delay will only be temporary, however, as we have made such arrangements as will enable us to resume the manufacture of our instruments and apparatus in a few days. Thanking you for past favors, and respectfully soliciting the continuance of the same, we remain,

Yours truly,

MCINTOSH GALVANIC AND FARADIC  
BATTERY CO.

Already orders are having prompt care.

THE Moss Engraving Co., No. 535 Pearl st., New York have favored us with a very beautiful calendar. Twelve large Mosstypes of lovely children serve as the pictorial part, and the whole affair is a fine example of picture-printing. It will cause pleasure for a whole year, wherever it is hung.

MESSRS. ROBERTS & FELLOWS, 1125 Chestnut st., Philadelphia, have just issued a complete catalogue of their Oriental, European, and American stereoscopic views which covers nearly fifty pages. It includes Edward L. Wilson's Oriental views. All are sold now at \$1.50 per dozen. A supplemental catalogue of "Choice Selections" of *Bible Land* photographs is also issued. These selections are about half size and are sold in packets of twelve at 75 cents per dozen. They are intended particularly for teachers and students and are very neatly made.

BRAIN PICTURES.—Mr. G. G. ROCKWOOD, of Union Square, New York, has been regaling the readers of the *New York Tribune* with a lively account of some "curious figures" found with a microscope upon the brain tissue of the lobes of a murderer. We ———!

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

**MAKE OUT YOUR OWN BILL,** and remit cash with your advertisements, or they will not be inserted.



### VIEWS

reproduced in this popular form, at lowest prices, from prints or negatives.

A. Wittemann,  
60 Reade St., N. Y.

SEND us one dollar, and we will send you the very best print roller in the market.

GEORGE MURPHY,  
No. 2 Bond St., New York City.

GALLERY.—An A 1 photographer of twenty years' New York experience wants to make an arrangement to rent and buy a gallery from the owner. Address

"PHOTOGRAPHER,"  
34 Hancock Ave., Jersey City, N. J.

A STRICTLY first-class operator and retoucher is wanted in a leading gallery by April 1st. Good salary and a permanent position to a good man. Address,

SARGENT & Co.,  
170 Bank St., Cleveland, Ohio.

WANTED.—A printer, competent and reliable; state reference and wages wanted.

H. E. NOBLE,  
Lincoln, Neb.

WANTED.—The *live* photographer everywhere, to issue special-rate photo. checks in combination with our *glass tablet photo mounts*. Is new; takes at once.

We mount cabinet size prints for photographers for \$1.00 each, transportation paid by us. E. K. TALCOTT, 216 Northampton Street, Boston, Mass.

FIRST-CLASS Operator and Artist in ink, water-color, and crayon, also fine retoucher with 12 years experience in the best houses in Boston and European studios, wishes to correspond with some reliable house needing such help. Well acquainted with the German, French, and Spanish languages, and would not object to go West, South, or Mexico. Best of references if desired. Address, ODIN FRITZ, care Partridge, 2832 Washington St., Boston.

Now in stock, the Seed Plates, *quick*, Sensitometer No. 24.

GEORGE MURPHY,  
2 Bond Street, New York.

### TO PHOTOGRAPHIC STOCK OR DRY PLATE HOUSES.

As I have had 12 years' experience throughout the Photographic business, I wish to travel for a first-class house, either as Salesman or Dry Plate Demonstrator; know I could make it pay for any first-class house engaging me. I am perfectly well acquainted with the German, French, and Spanish languages, and think I could start a good South American trade. Address, ODIN FRITZ, care Partridge, 2832 Washington St., Boston.

WANTED, for a high-class gallery in Australia, first-class operator, thoroughly up in Dry Plates in respect to posing, lighting, and chemical effect. Must have been engaged in high-class studios two years. Outward passage paid from San Francisco. Address, enclosing photo with specimens, stating age, experience, and giving full particulars, to N. S. W., care of John Carbott, Keystone Dry Plate Works, Wayne Junction, Philadelphia, Pa.

BUY BURNET.

SAMUEL G. NIXON,

Portrait Artist,

813 Arch St., Philadelphia, Pa.

Established December, 1878.

Photographic Enlargements supplied and finished in Ink, Crayon, and Water Colors. Terms on application.

TO PHOTOGRAPHERS.

N. B.—If a picture furnished by me is not satisfactory to your patrons, send it back and I will endeavor to correct it without extra charge.

S. G. NIXON.

TESTIMONIALS.

"Your last was perfectly satisfactory, and has been much admired."—CHAS. A. McLENNAN, Pictou, Nova Scotia.

"The picture pleases all interested, and will command us a good trade from its locality."—ALFRED FREEMAN, Weatherford, Texas.

"I think the work is the finest I have seen in a long while. I shall send some more in a few days."—O. P. HAVENS, Savannah, Ga.

"I was well pleased with your crayons, the work was first-class. . . . Modelling excellent and likeness well preserved."—SAMUEL LYNN, Paris, Texas.

"Last picture came in season and pleased my customer very much."—J. F. ENGLE, Fernandina, Fla.

Get Wilson's "Quarter Century in Photography," \$4.00.

F I Z Z-Z-Z-Z-Z-Z!

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**LIGHTNING FLASH**, for making *Negatives at Night*. Successful. Lots of Fun! Try it. Ask for *Lightning Flash*. Read the label.

**LIGHTNING FLASH**

Prepared by

**BUCHANAN, BROMLEY & CO.,  
PHILADELPHIA.**

For sale in *New York* by The Scovill Manufacturing Co., George Murphy, and The Obrig Camera Co.

Price, per box, 75 cents.

Will sell all of *Usener Lenses* at cost. GEO. MURPHY, 2 Bond Street, New York.

EVERY gallery should have a *Studio Register*. It is complete, economical, and altogether practical. Send for a sample leaf and price-list to the Sole Agents, Smith & Pattison, Chicago.

— EUREKA! —

(BARGAIN LIST.)

1 25 inch Entrekin Burnisher . .	\$45.00
1 5 x 8 '76 Camera, Roll Holder and carrying case . . . . .	30.00
3 Bergner Stereo Cutters, each . .	15.00
1 8 x 10 Blair Champion R. B. Camera with 5 Extra Featherweight Holders, and 1 14 x 17 Extension and 1 English Bookfolding Holder, complete .	55.00
1 Darlot $\frac{1}{2}$ size Portrait Lens, Rack, and Pinion Central Stops . . . . .	14.00
1 $\frac{1}{2}$ size Lantern Objective, no name, good condition . . . . .	5.00
1 No. 2 Euryscope Lens . . . . .	40.00
1 Pair (matched) No. 0 Euryscopé Stereo Lenses . . . . .	40.00
1 Pair (matched) Ross Wide Angle Stereo Lenses . . . . .	25.00
1 No. 2 Darlot Rapid Hemispherical .	20.00
1 E. A. Single Combination Lens, Rack and Pinion Movement . . . . .	5.50
1 Ross $\frac{1}{2}$ size Portrait Lens, Rack and Pinion, Central Stops . . . . .	30.00
1 14 x 17 Morrison Wide Angle Instantaneous Lens and Drop Shutter .	35.00
1 Spencer Head Rest, Nickel-plated Rods . . . . .	7.00

The above bargains are offered for sale for cash and are all guaranteed to be in good working condition or no sale. ROBERTS & FELLOWS, 1125 Chestnut St., Philadelphia, Pa.

PHOTOGRAPHERS.—Send for circulars and lists. New ones continually published. GEO. MURPHY, 2 Bond St., New York.

THE PLATINOTYPE for Amateurs; simple to work, and the results artistic and beautiful. Send ten cents for sample landscape and book of instructions.

WILLIS & CLEMENTS,  
1112 Hunter St., Philadelphia.

PHOTOGRAPHIC MASKS.

The Rockwood Triplex Portrait Mask. One Dozen mailed on receipt of 50 cents. Also, manufacturer of all kinds of picture mats.

H. STENGEL,  
710 Broadway, N. Y.

Try the new Sulphite Soda. Cryst. GEO. MURPHY, 2 Bond St., New York.

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SUCCESS

## SENSITIZED PAPER PRESERVATIVE.

A Great Boon to Photographers.

PATENT APPLIED FOR.

—SIMPLE, RELIABLE, CHEAP.—



No more anxiety in regard to the weather or in keeping your paper until the sun shines, or until it can be used. It will save the average photographer five times what it costs to use it, saying nothing of the convenience of having sensitized paper always ready for use.

It is as valuable in Winter as in Summer, and will pay for itself five times over in the saving of time, labor, and gold, as where paper is kept two or three days it tones much easier than without it, and requires less gold.

Price, \$2.00 per Package.

USE ONLY

TIN CYLINDER CANS.

This cut illustrates the apparatus that will do the work successfully.

For sale by all Photographic Stockdealers.

GOLDSMITH &amp; MOFFITT,

Sole Manufacturers,

374 Main St., Springfield, Mass., U. S. A.

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We have this day shipped to our warerooms  
819 Arch Street, Philadelphia,  
208 State Street, Chicago,  
an invoice of

## THE HUB BRAND DRY PLATES

to meet immediate demands. More shall follow daily. Remember that we shall deal liberally with all photographers who are willing to convince themselves of the quality of these plates. They have our guarantee. THE BLAIR CAMERA Co., Boston.

A RETOUCHER of long experience is prepared to work for the trade. Apply at 36 Bromfield St., room 40, over Codman's, Boston, Mass.

TO PHOTOGRAPHERS.—Upon receipt of eighty-five cents I will mail sample dozen of either Anchor or Morgan's Brilliant Albumen Paper. GEO. MURPHY, 2 Bond St., New York.

## BUY BURNET.

## TO OUR PATRONS.

St. Louis, March 25, 1887.

GENTLEMEN: Being informed of an increased discount offered by one of our competitors, we take the liberty to inform our patrons that we cannot, in justice to ourselves and to those who have honored us so far with their patronage, make such an offer. Having been in the business now for over four years, we have succeeded in making a plate which we can say with confidence has given entire satisfaction, and it would be an impossibility to lower the present prices without lowering also the standard.

We are assured that our friends will not abandon the use of our plate, even should it cost them a trifle more. Very respectfully,

M. A. SEED DRY PLATE Co.

A. R. HUISKAMP, Manager.

TO FERROTYPERS.—Use the Eagle Positive Collodion for fine effects. GEO. MURPHY, 2 Bond St., New York.

## TO PHOTOGRAPHERS.

Send for Bargain List and any requirements needed. GEO. MURPHY, 2 Bond St., New York. Eagle Stock House.

Get Wilson's "Quarter Century in Photography," \$4.00.

GRAY'S PERISCOPE.—This new photographic lens is being very favorably received both in this and the European markets. The *Periscope* is a rectilinear combination, and is most useful for views and architectural subjects that require microscopic definition over a largely extended field. Owing to its simplified construction, the Periscope is sold for less than half the price of any other lens serving the same quality of work. Send for list.

Nos. 1, 2, and 3 screw into the same flange, and can be had in matched pairs for stereoscopic work. Nos. 4 and 5 screw into the same flange. R. D. GRAY, 259 West 27th St., New York.

THE PLATINOTYPE for Photographers, Solar Printers, and all Copyists. Platinotypes are permanent, and a license to work the process costs very little. Send ten cents for sample portrait and book of instructions.

WILLIS &amp; CLEMENTS,

1112 Hunter St., Philadelphia, Pa.

TRY VAN SICKLE—also the New Compound Shutter. Can be made to fit any front. GEO. MURPHY, 2 Bond St., New York.

## TO PHOTOGRAPHIC MERCHANTS.

NEW YORK, September 1, 1887.

GENTLEMEN: We have now opened a *New York Depot* for the benefit of our Eastern patrons. From this depot orders will be delivered to any New York Freight, Express, or Steamboat office. Address M. A. SEED DRY PLATE CO., No. 2 Bond St., New York. A. R. HUISKAMP, Manager.

*Quarter Century.*—T. C. HEPWORTH, Esq., author of the very acceptable "Notes from London" which appear in our pages and editor of the *London Camera*, writes the following concerning Wilson's *Photographics*:

A handsome book of nearly 400 pages, from the pen of one who is already known to the readers of the *CAMERA*. Dr. Edward L. Wilson, who tells us month by month what is going on among the photographers of America, has produced in this volume one of the best and most original works upon photographic art which we have ever seen. It is constructed upon a somewhat new plan. The body of the work is printed in large type, which the reader is recommended to master before attacking the copious notes in smaller type which are printed beneath. The large type words are Dr. Wilson's, and the notes are gathered from nearly two hundred authorities, with the names and initials appended to each. The plan is a good one, and will be appreciated by the practical worker. Dr. Wilson has the gift of writing what would be very dry matter in other hands in a fresh and interesting manner, adorned frequently with touches of humor which give his work much charm. His extended experience in all branches of photography cause him to represent a good authority upon the art, and the beginner, as well as the advanced student, cannot be in better hands as a guide. With regard to the notes, which, by the way, are illustrated—and well illustrated, like the rest of the book—they are evidently the outcome of most diligent research. One is often apt to regret that the little recipes, experiences, and dodges which form brief paragraphs in photographic literature should be too often forgotten in the limbo of back volumes. Dr. Wilson has preserved such items for us in the notes to his "Photographics," and for this reason alone the volume should find a place in every photographer's library.

BUY BURNET.

It is a pleasure to know that all of the best photographers in the city of PHILADELPHIA are using Three Kings Albumen Paper. Price per dozen, 90 cents; per ream, \$32.00; second choice, per ream, 24.00.

BUCHANAN, BROMLEY & Co., Importers,  
Philadelphia.

THE best Position Chair ever introduced is the Celebrated "Queen Poser," manufactured and patented by Smith & Pattison, Chicago. Hundreds have been sold. Send for descriptive circular and price list.

Get Wilson's "Quarter Century in Photography," \$4.00.

ART OF MAKING PORTRAITS IN CRAYON  
ON SOLAR ENLARGEMENTS.

SECOND EDITION.—NOW READY.

The *Photo Times* says: "The second edition, rewritten and enlarged, of this popular handbook for crayon artists, has recently been issued. The first edition of this book being small and published rather as an experiment, many important points on the subject had to be treated briefly. But that edition meeting with such a warm reception and selling so rapidly, the author resolved to enlarge the second edition and give his readers the benefit of the knowledge which he had since gained of new materials and a fuller description of his methods of handling them. The little work treats solely of bust and vignette portraits, and its aim is to assist young artists who are struggling alone beyond the reach of competent teachers. After an introductory confidential chat with the students, we have chapters on the Solar Print, Crayon Materials and How to Prepare them; the Crayon Print, Interlining and Retouching; Hair and Beard; Drapery; Background; and Concluding Remarks."

Price, in paper cover, fifty cents.

For sale by EDWARD L. WILSON,  
853 Broadway, New York.

NOW IN stock, the *new quick* Seed Plate, Sensitometer Nos. 24, 25, 26, and 27.

GEORGE MURPHY,  
No. 2 Bond St., New York City.

Photographers desiring first-class crayon and pastel work, by a skilled graduate of the Cooper Union Art Department, will please address

MISS A. C. HOGG,  
245 S. 9th St., Brooklyn, N. Y.

**SITUATIONS WANTED.**

*No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.*

By an experienced process operator, understands all the processes. Address "Processes," 409 Throop Ave., Brooklyn, N. Y.

By a practical photographer experienced in all branches, as demonstrator and instructor to amateurs, or as operator in a first-class gallery. Address "Operator," 433 Sixth Ave., New York.

By a first-class printer and toner, a permanent situation. Is reliable and thoroughly understands his business. Address "Photo Printer," 9 How St., Haverhill, Mass.

Wanted, April 1st, position as operator in live country town. Or would run gallery on shares. Thirty years' experience in all branches. No postals. Address C. Young, Youngsville, Warren Co., Pa.

By a first-class printer and toner. Address James Goodall, with A. C. Brownell, Providence, Rhode Island.

By a first-class silver and bromide printer, now or by spring. Best of references. Address 106 Francis st., St. Joseph, Mo.

In a good gallery as general assistant, good retoucher. Address R. C., P. O. Box 676, Cherokee, Iowa.

As printer or retoucher. Address Fred. Noble, Box 99, Lincoln, Neb.

By an A 1 printer, has had several years experience. Address Chas. G. Parker, 173 Madison Ave., Albany, N. Y.

A first-class operator and an artist, both of late service at F. W. Guerin, St. Louis, are open for engagement, or wish to hire a good gallery with privilege of buying the same. References exchanged. Address J. Hegyessy, 1013 Washington Ave., St. Louis, Mo.

As assistant printer or printer, can make himself generally useful; age twenty; good recommendation. Address H. H. K., 512 John st., Cincinnati, Ohio.

Good and permanent situation offered to a first-class operator and retoucher, must speak the German language. Oswald Bros., Minneapolis, Minn.

As operator and retoucher or general workman in first-class gallery, 15 years experience. Address Harry H. Hall, Norwalk, Ohio.

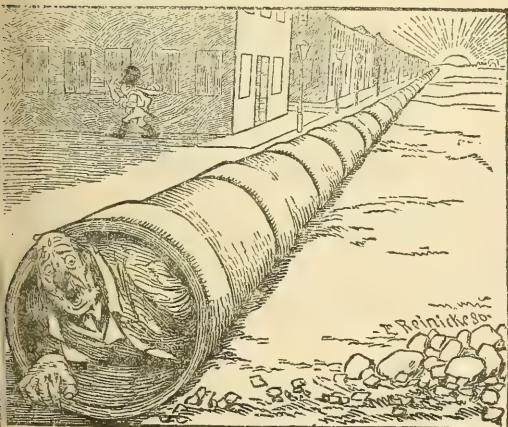
As bromides maker and finisher, in crayon, ink, pastel, and water color. Address Lock Drawer 75, Norwalk, Ohio.

In a good gallery by a young man as general assistant, or can take charge. Wages moderate. Address F. S. Johannes, Berlin, Ontario.

THE LARGEST Photo Engraving ESTABLISHMENT IN THE WORLD	SIXTEEN YEARS PRACTICAL EXPERIENCE	<b>MOSS ENGRAVING CO.</b> 535 PEARL ST. COR. ELM. NEW YORK	MOSS' NEW PROCESS Superior to Any Other Method.	ILLUSTRATIONS OF Every Description For Books, Magazines, Newspapers, Catalogues, CIRCULARS, &c. IN THE Highest Style of the Art
SEND GREEN STAMP FOR 24 PAGE CIRCULAR. SEND PHOTOGRAPH, DRAWING OR PRINT FOR ESTIMATE.				

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**1120 IN ONE DAY.**

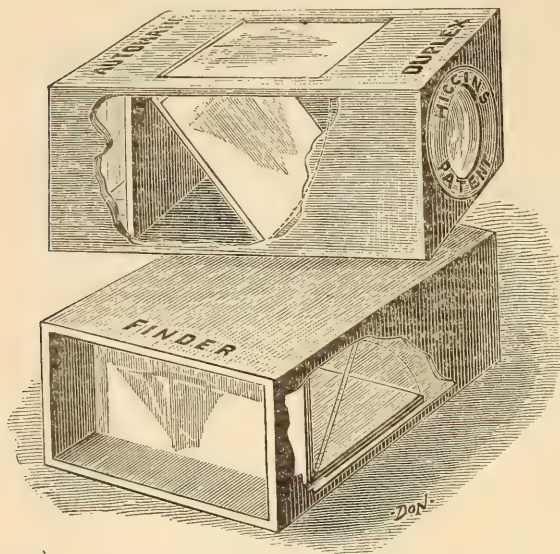
On Monday, December 12th, one week after I thought the trade had been supplied, I was surprised to receive additional orders for 1120 more copies. It is a marvel to me where they all go, but a

**SECOND EDITION**

has been printed and largely sold. The supply of happiness and *Mosaics* will continue as long as the copies last. Take advice and buy cloth, \$1.00.

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**ALSO OF ALL THE DEALERS.**



DR. HIGGINS'S

# Automatic Duplex Finder.

PRICE, \$2.50.

For description see the PHILADELPHIA PHOTOGRAPHER, Nov. 5, 1887, or send for circular to

GEO. MURPHY, Agent,

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NEW SNOW-COVERED LANDSCAPES AND WINTER ACCESSORIES,  
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Sole Agents for the NEW ORTHO-PANACTINIC LENS, Moor's Photographic Enamel, the Perfect Mounting Solution for mounting Photographs on the thinnest mount without wrinkling.

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HAVING met with great encouragement from all first class galleries in New York, I have opened a branch house for the specialty of enamelling Photographs of all sizes.

### PRICE LIST.

Imperials, \$1.00 per dozen, or . . \$0 15 each.	Boudoirs or Panels, 10 x 12, . . \$0 70 each
Boudoirs or Panels, 5 x 7, . . . 30 "	" " 12 x 14, . . . 1 00 "
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Orders executed in 24 hours.

Postage not included.

LEON FAVRE, 236 West 44th St., N. Y.

NOTICE.—Photographs to be enamelled must be sent unmounted, Mounts apart.

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For either Dry or Wet Plates.

Every Photographer has constantly felt the want of some means to satisfactorily reduce an **OVER-DEVELOPED OR TOO DENSE NEGATIVE**. The error in development naturally inclines to a full or complete one. The exact normal or desired strength it is impossible, in the *dim light of the dark room*, for even the practiced and constant artist of the Gallery or Studio to secure. How much more so with the amateur or occasional operator! For the achievement of this **DESIDERATUM** we have been at an outlay of more than ordinary expense and time, and are now enabled, as the result of long-continued experiments and trials, to furnish an article **RELIABLE AND SATISFACTORY**, and without which one would as soon be as *without his developer*. The ability of being able to *reduce*, in the white light of the open room, a plate, either ever so slightly or even a *cast iron negative*, to what is wanted, is now within the reach of every one. Of its desirability it is needless to speak. With the

## IMPERIAL NEGATIVE REDUCER,

The First and Only Original and Perfect One Offered to the Public (beware of the fraudulent and worthless imitations that will soon follow), the Atelier is complete, as testimonials from our most distinguished artists confirm.

NEW YORK, Jan. 21, 1888.

MR. GEO. MURPHY,

DEAR SIR: The Imperial Reducer *is fine*. It attacks the strongly lighted parts and keeps the details in shadows.

H. O'NEIL.

NEW YORK, Jan. 21, 1888

MR. GEO. MURPHY,

DEAR SIR: You are certainly welcome to what I know of your *Imperial Negative Reducer*, and you will surely gather much money and more thanks for introducing it to the Photographic Legions.

Yours truly, FALK.

NEW YORK, Jan. 21, 1888.

MR. GEO. MURPHY,

DEAR SIR: I am highly pleased with the very excellent qualities of your Imperial Reducer. It works like a charm, and I do not see how it could be improved. I have used the bottle received from you on quite a number of negatives with uniform success, and I would hardly know how now to be without it.

I am, very truly yours,

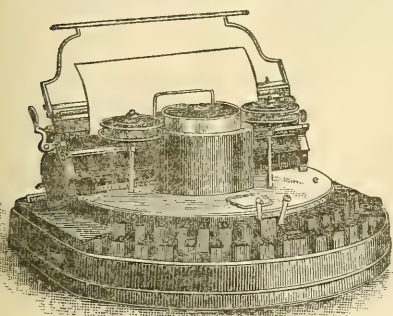
J. J. HIGGINS, M.D.

Manufactured only by **GEORGE MURPHY, Sole Proprietor,**

Price, per Pint Bottle, 80 Cents.

*No. 2 Bond Street, New York.*

## "HAMMOND"



## TYPE-WRITER

LONDON AWARD, OCTOBER, 1887.

"The best type-writer for office work where speed is required."

MECHANICS' FAIR, BOSTON, DECEMBER, 1887.  
*Awarded the only Gold Medal.*

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RICHARDSON'S

## GLACÉ LUBRICATOR.

Entirely New, and the Best Imitation  
of Glace ever Discovered.

Just as easy to apply as common soap lubricator, and as beautiful results can be obtained as with the real glacé method. In offering this new preparation to the fraternity we do so without the slightest hesitancy, feeling confident that it possesses so many virtues that when a fair trial is given it will be found to be utterly indispensable to every gallery. There are times when every photographer has trouble in burnishing his prints. They will not take a polish. With the use of this lubricator the trouble is always avoided. It produces a beautiful, rich, satin polish, strengthens shadows, brings out detail, fills the pores of the paper, leaving a thin film over the picture which protects from the action of the atmosphere, preventing spotting and fading to a great extent. Nothing heretofore ever used makes a picture look so beautiful. Since first introducing this preparation we have improved it greatly. It can now be used on any kind of mount, colored or otherwise. The color will not come off, and it never fails to produce a beautiful gloss.

Price per bottle of 8 oz. - - - \$1.00  
" " " 4 " - - - .50

Price per bottle of 4 oz. by mail, postage paid, .75

Ask your stockdealer for it. If he has not got it, order from

W. P. RICHARDSON,  
*Easthampton, Mass.*

**C. H. CODMAN & CO.,**

No. 34 Bromfield Street, Boston, Mass.,  
Sole Agents for New England States.

**BUY THE BEST!**

No other will give you half so much satisfaction.

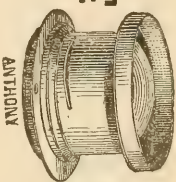
FOR DRY PLATES  
ANTHONY'S Patent Perfect PLATE HOLDERS  
ARE SUPERIOR TO ALL.



**APPARATUS OF ALL KINDS.**  
Chairs,  
Neg. Boxes,  
Camera Stands  
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Etc., Etc.

**DALLMEYER LENSES,  
SUCCESS CAMERAS,  
THE FAIRY CAMERAS,  
THE NOVEL CAMERAS,  
SCHMID'S DETECTIVE CAMERA**

SEND  
FOR OUR  
CATALOGUE,  
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THE BEST  
Of Everything.

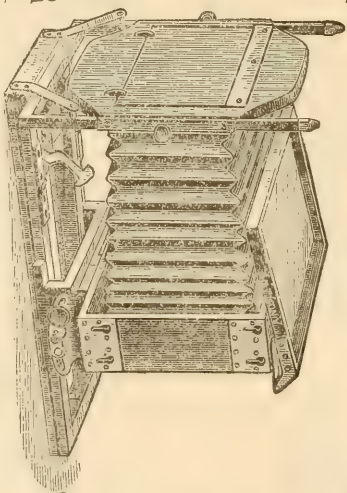
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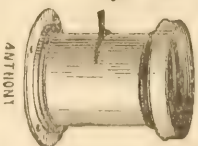
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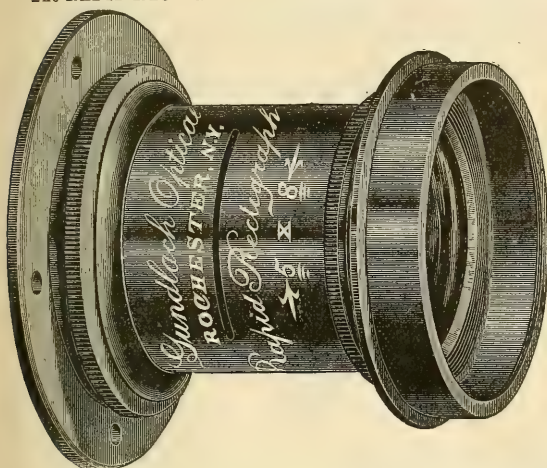
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3	6 1/2 x 8 1/2	5 x 8	1 1/2	9 1/4	10
4	8 x 10	6 1/2 x 8 1/2	1 3/4	11	12
5	10 x 12	8 x 10	2	13 1/8	14 1/4
6	11 x 14	10 x 12	2 1/4	15 1/4	16 1/2
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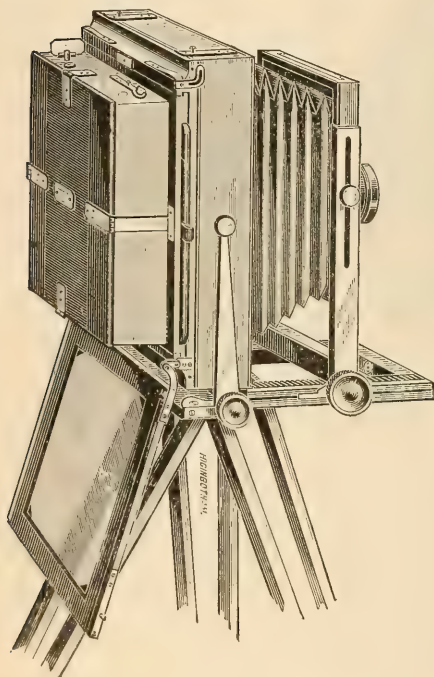
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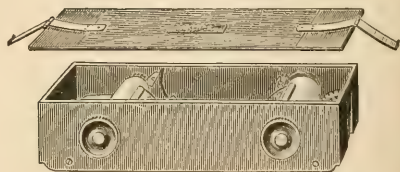
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### THOUGHTS SUGGESTED BY "WILSON'S QUARTER CENTURY IN PHOTOGRAPHY."

BY E. K. HOUGH,

Artist and Photographer,

in the the *Photographic Times*, November 25th, 1887.

I HAVE been much interested lately in reading *Quarter Century*, and feel inclined to make a few comments. The book is before me. I remember well the impression it first gave me. I thought, "What a beautiful volume! Nice enough for any library. The binding is elegant in its simplicity, with its beautiful lettering in pure gold and nothing flashy. If the same good taste has controlled thought, it must be well executed. But what a large book! Can we expect good sense, and live thought, through half a thousand pages? Or is it, like too many photo books, a few meagre scraps of useful information, padded with bulky history, telling what nobody cares to know, and elaborate cautions to avoid what nobody ever thought of doing?"

Mr. Wilson is always saying, "boil down," "concentrate." Hasn't he "reversed on us" this time and "amplified?"

We'll read the preface; that always gives some clue to the author's intention.

Well, the preface is short, pithy, and spirited, quite a biography—the spirit of a lifetime in a nutshell.

Then the list of authorities from A to Z seems enough to start a clycopædia. But, running it over, we notice some of the most valued names that photography has pro-

duced. Men who have for years given the best results of their thought and labor for common good. Generous, noble men, whose names are guarantee for a feast of good things, and the list of "illustrations" confirms it. Three hundred and eighty-six; one for almost every page in the book; what a wealth!

But this is the age of illustration, they say. Never before were pictures used so freely and generously as now, on every subject, by every class, in every kind of business. But a few years ago—within the lifetime of many yet living—the revenues of an empire could not have produced pictures so perfect and abundant as those now thrown about as carelessly as forest leaves in autumn.

And our art of photography is largely the exciting and producing cause. So it is but "rendering unto Cæsar" his own, when books on photography are liberally illustrated; surely, by the light that pictures give we can see better how to make them.

As we run the book through, we notice the good paper, the clear type; the bright pictures, the careful division of subjects, the running commentary of quoted authorities, all methodically arranged like a well-kept garden, each variety in its own bed, and all carefully weeded that no space be wasted by useless product.

Surely, we think, this book must be of value to every one interested in photography. Let us begin to read it systematically:

Chapter I.—The History of Photography.  
Only four pages. No "amplification" of that subject.

Chapter II.—The Theory of Photography.

Less than half a dozen pages.

Chapter III.—Light.

Less than four pages.

Chapter IV.—The Camera.

Only two pages.

Bless me! What is the man thinking of? Concentration! Boiling down! Why, this is hydraulic compression; this is putting the ocean into a gallon jug; this putting photography entire into a capsule that one can swallow like a quinine pill!

If he is going on like this, what on earth is the book made of? But hold on.

Chapter V, about lenses, has over thirty pages, profusely illustrated. That is right; that is putting the information where it will do most good. For the ignorance of photographers about their lenses is simply incredible.

They don't know how or why lenses are made as the are, nor the differences between them, as portrait, rectilinear, wide-angle, etc. There are scores who could not even give an intelligent explanation of why the image is formed upside down. And yet the lens is the most vital part of their outfit, the part on which their very life (business life) depends, as much as the soldier on his rifle, the musician on his piano, the machinist on his engine.

And although now probably all of these know more about their respective instruments than the average photographer about his lenses. Yet, by studying this chapter, the operator can come to understand the construction and working power of his lenses so thoroughly that he will not have to evade an answer to conceal his ignorance when questioned regarding them. Besides, he will increase his power in using them.

The next chapter is on diaphragms, and ten pages tell a great deal about the use and abuse of those little adjuncts to the lens, and how many a picture has been spoiled by not knowing how and when to use them. It is all useful to the practical worker, and full of ingenious devices clearly explained.

Then we come to a chapter on the construction of the glass house, the sky-light, the operating-room.

Thirty pages crowded with elaborate illustrations, making clear the various forms and methods; so various, that the operator who could not find here some plan to suit, would be hard to please; and any photographer intending to build newly, or reconstruct his old light-room, would, doubtless, save many times the cost of this book by carefully reading this chapter before he began, besides being better satisfied when done.

The succeeding chapter, "Under the Sky-light," is full of good ideas fully illustrated through thirty-six pages; and the photographer must be far advanced indeed who cannot get many new and useful ideas from it; while to the new beginner, or the partially experienced, it is invaluable.

The next chapter, on "The Application of Art Principles," brings us to "the very pulse of the machine," for all the rest counts for nothing without this. The carefully constructed skylight, the beautiful camera, the perfect lens, the complete machinery of curtains, screens, reflectors, backgrounds, and "shadow chambers," are all made for the sole purpose of facilitating the application of art principles to portraiture.

To construct them and not apply art principles in using them, is to misuse and misapply them, as much as to use the carefully constructed rifle of the soldier for a crow-bar; or the beautiful piano of the musician for a manger; or to keep the wonderful machinery of a perfect locomotive always ready, on the track, blowing off steam, but never going anywhere—useless activity. So, making pictures with skylight, camera, and accessories, without the application of art principles, is useless activity, and the more active the more useless, *i. e.*, the greater waste of noble possibilities.

This chapter on Art is as full of good ideas as an egg is of meat, all given upon the highest authority and backed by the strongest reasons. There is one sentence, that, taken as a text, might be elaborated into a volume by itself, and not exhaust the subject. It is this: "The two great main considerations which should occupy the

mind of every photographer are these: *What is the best view he can take of his sitter, and what effect of light and shade will be most becoming to the sitter's countenance? On these two considerations the success of every portrait entirely depends.*"

Acting upon and carrying out these "two considerations" will always bring into play all the photographer's natural ability and acquired knowledge, however great an "artist" he may be.

As the writer says, that sentence "is worthy of being printed in letters of gold and hung where every operator in the land must see it daily."

Art principles applied to indoor and outdoor work are explained, illustrated, and enforced through nearly one hundred of the richest pages in the book; full of suggestion, animation, encouragement, and vital truth. No photographer can read these pages and not straighten up with new resolve to do better work on these lines, at any cost of thought and trouble. They are full of inspiration, and stimulate to new endeavor like mountain air where every step upward stirs the blood and gives new vigor for climbing higher.

Having awakened this desire to do the best work possible, it continues through the last half of the book—over two hundred and fifty pages—to explain the mysteries of the chemicals and negative making, printing, etc., with short explanations of all the new processes, including photo-engraving and the new "color sense" in negatives.

But for the great majority of portrait and view photographers in everyday work, the most interesting and immediately useful section is that on "dry-plate negatives." Nearly a hundred pages, going into all the mysteries and manifold advantages of that wonder in photographic progress, the gelatine dry-plate.

There is much to learn. New chemicals, new processes, new possibilities; new ways of developing, strengthening, reducing, preserving, all explained here, and made as easy as the old ways and far more convenient.

What a treasury of photographic knowledge! How plain, and clear, and easy the path of the new beginner is now, compared to the barren and rugged ways that we had to stumble over in those earlier years; almost without guide or compass we plodded on, often deceived by false directions, misled, mistaken, sometimes swindled, often paying, in our eagerness for all that could be learned, many times the cost of this volume for less valuable information than can be found in any one of these five hundred pages.

We have all heard the old story of the enterprising Western artist who came East and paid \$500 for learning that a drop of nitric acid would keep his ambrotype bath from fogging; and who, immediately on returning home, issued circulars to his neighboring brethren, and sold the secret to ten of them for \$100 each, and all were satisfied.

If all the valuable information in this book regarding dry-plates was held at that rate, the knowledge of photography would be confined to millionaires. But here we have a beautiful book, with the concentrated essence of all that has been discovered or invented in photography for twenty-five years, for less than the price of a dozen cabinets.

Any ordinary photographer will have made and saved more than the cost of the book before he can read it through, by the knowledge he will acquire at the very beginning.

How any one can hesitate to avail himself of so much valuable information at so little cost, passes comprehension. No wonder they are selling rapidly.

This volume and *Photographics* will be the photographer's standard library; his books of ready reference, his "Inquire-within-for-any-thing-you-want-to-know," his compendium of universal knowledge in photography, and it will be a long time before the progress of the art will make another such book necessary.

FREDONIA, N. Y., Nov. 8, 1887.

The Second Thousand of this splendid book is now largely in use. "Universally useful" is the general verdict.

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For twenty years it has been my personal Art Text-book. It is invaluable, and I give it the highest commendation.

## OPINION OF BURNET'S WORKS BY MR. H. P. ROBINSON.

*Author of "Pictorial Effect in Photography," "Picture-making by Photography," "The Studio and What to Do in It," etc., and the greatest English Photographer and Artist.*

To EDWARD L. WILSON,

I am glad to see you are publishing reproductions of Burnet's Essays on Art. If photographers really cared for art, which I sometimes doubt, and knew the value of these books, you would sell a large edition. I remember well as a boy, long before I had thought of photography, saving up my pocket money to buy one of these, at that time, expensive books. I chose the one on Composition, that admirable essay, which, with its illustrations, is so clear and convincing, I have always looked upon as the very solid foundation of all I may know of art. The other essays I have read and admired but never possessed, for by the time I could afford to buy them they were out of print and difficult to obtain. I strongly recommend these books to all who want to know what is really sound in art.

Respectfully yours,

H. P. ROBINSON.

## A NOTED ARTIST'S OPINION OF BURNET'S ESSAYS ON ART.

To W. I. LINCOLN ADAMS,

DEAR SIR: The "Practical Essays on Art" form the safest guide to all students of pictorial arrangement and composition. It is not a book to be placed on the library shelves to be consulted from time to time, but rather one to be studied daily until all the principles it advances have become a part of one's definite knowledge. Read, re-read, analyze, apply, and then return again to this masterly compendium. One's originality is rarely of value unless based on such a sub-structure of principles as are so ably explained. I would place this in the hands of every amateur and professional artist and photographer in the country, if I could. I hope, since that is impossible, that all students will save their pennies until they can own the book, and thereafter truly own it by becoming thoroughly familiar with its contents. Delight in possession of this sort no money can express. With best wishes for the success of this revival, I remain,

Respectfully yours,

NEW YORK CITY, December 24, 1887.

J. WELLS CHAMPNEY.

## MR. ROOT'S OPINION OF BURNET'S ESSAYS ON ART.

You certainly deserve great credit for resurrecting this valuable and much needed work, and success is sure to come.

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The prize-takers at the Chicago Convention will nearly all be represented by at least one reproduction from their exhibition collection. About fifty of the prize pictures will appear—the editor's choice. The magnificent collection thus secured to every subscriber was never equalled.

Notes, formulæ, and practical points by the prize-takers and their operators will accompany the pictures.

A new staff of practical writers, added to the old favorites, will contribute a condensed, yet thorough series of papers. Among these will be the best articles from our exchanges and notes from London, France, Germany, Italy, Russia, Holland, Spain, Australia, India, and Egypt. The staff of American contributors has been greatly augmented also, and will present some grand new features. Early in the year Dr. J. J. Higgins of this city, will contribute an analytical and exhaustive monograph running through three or four numbers, on the "Circle of Confusion," as present in the use of photographic lenses. It will be exceedingly interesting and valuable, aside from being the only complete treatise on the subject. No expense will be spared in illustrating it elaborately.

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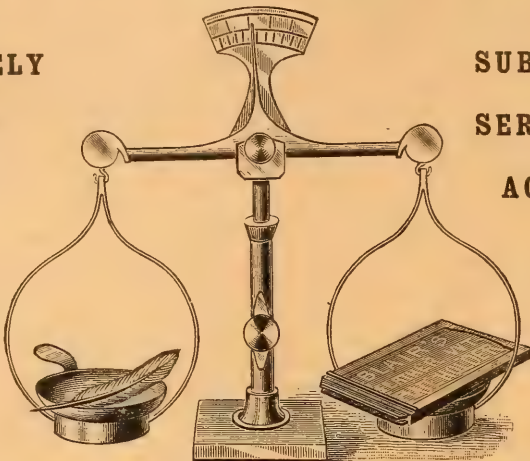
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After a period of three years since the first introduction of this Holder, we feel that the object in view has been fully attained—the immense sale attesting most forcibly to its great popularity. It is not only the lightest and most compact Double Plate Holder ever made, but it is the most perfectly light tight, while being so readily filled and emptied.

In this Holder (as the thickness of plates vary so exceedingly) we have not supplied the spring usually placed on the dividing board to the front of holder, on account occupy, even when pressed down, cient to accommodate the thickest

In using thinner ones a slight placed in the holder, and in found that the paper acting in sion board, forms a very admirable

However, we now make these

to press the plate outward, without extra charge, but holders having such springs are of necessity about one-quarter thicker than those without springs. They are likewise provided with a safety ledge at the slide end of the Holder, so that when the slide is withdrawn, the ledge prevents the pressure of the spring from throwing the plate out.

We have been besieged with inquiries, urging us to adapt this Holder so that it could be applied to different make of Cameras. This we have decided to do and are now preparing for stock Holders of this pattern fitted to any standard Cameras. Makers of Cameras have been so careless about adopting system in fitting Holders to their Cameras which would admit of their being duplicated safely that it would be wise to send a holder which fits properly the Camera on which it is desired to use the Feather-weight Holder. It must be borne in mind that unless an adjuster is made, the outside dimensions of the Feather-weight Holder will necessarily have to be the same as the Holder formerly used with the Camera.

The many advantages possessed by this Holder over all others should commend it to every amateur or professional photographer.



keep the dry plate pressed tightly of the space the spring would and have allowed only space suffi-plate likely to be used.

bedding of soft paper may be pressing the plate down it will be combination with the pliable divi-spring or cushion

Holders when desired with springs

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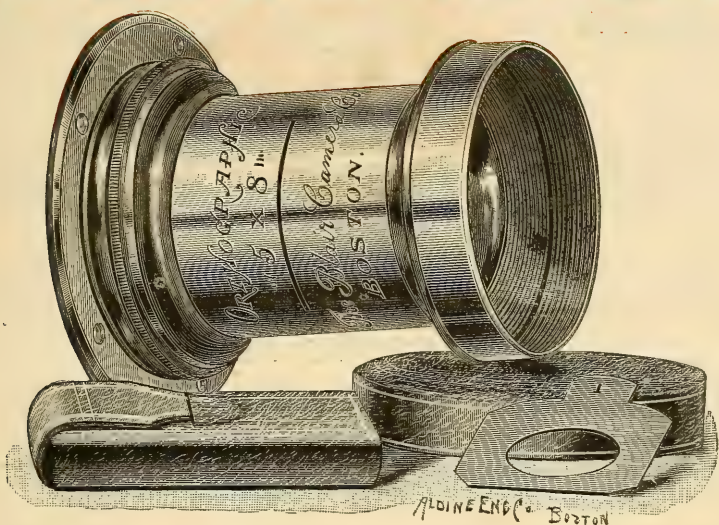
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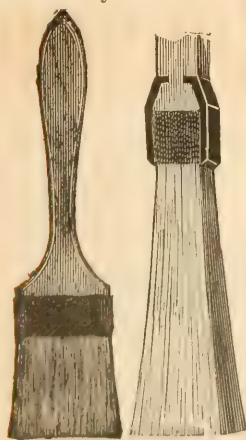


Size,	For Plates,	and	4 x 5.	1 1/2 in. deep,	\$0.66
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" 5 1/2 x 7 1/2.	" 4 1/4 x 5 1/2,	"		1 3/8	1.05
" 5 1/2 x 8 1/2.	" 5 x 8.	"		1 3/4	1.15
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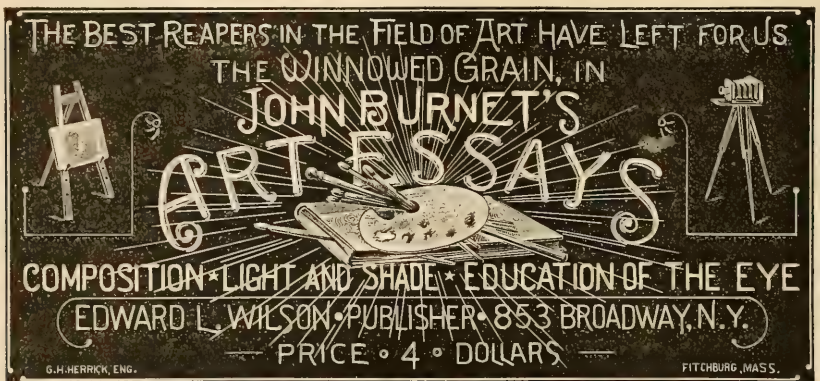
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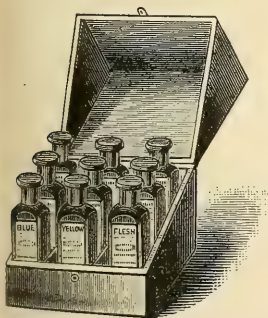
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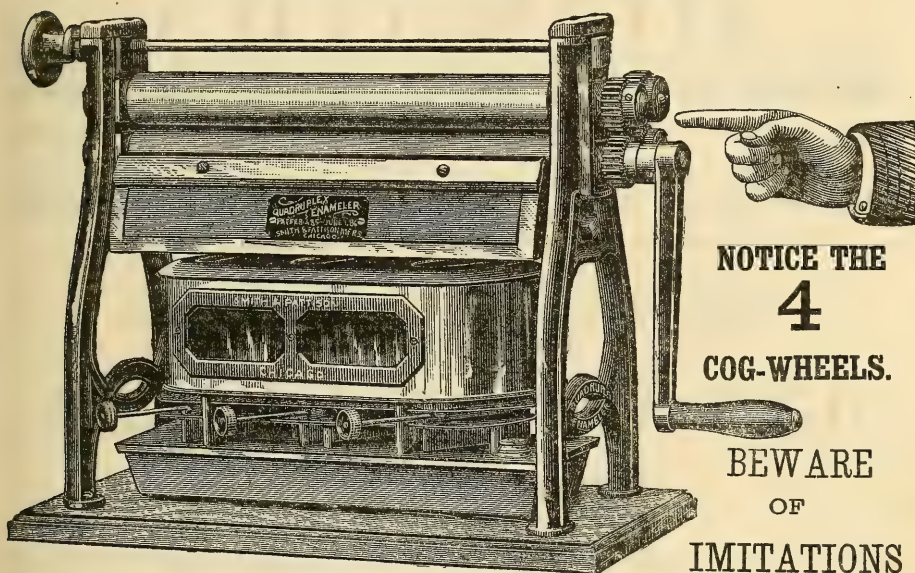
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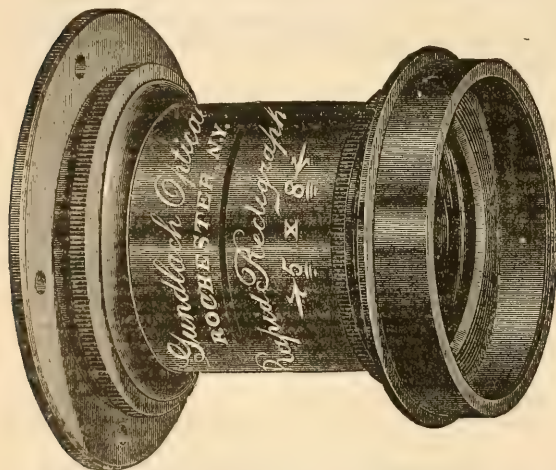
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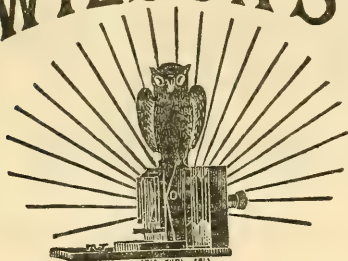
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EDITED BY EDWARD L. WILSON.

Vol. XXV.

FEBRUARY 18, 1888.

No. 316.

**A MODEL CHILD PORTRAIT.**

THOSE of our readers who followed Mr. Rockwood's tribulations while illustrating "To a Child," in our last number, will appreciate, by contrast, this characteristic pose.



We do not know when a more "fetching" picture has come to our table, where the little ones are always so welcome. The attitude is as lovely as can be, and the story told by the picture might well be called *A Model of Young America*. The little fellow is one of our choice acquaintances, and belongs to all of us, for he is Master Francis Wells Wilcox, youngest son of Col. V. M. Wilcox, of E. & H. T. Anthony & Co., New York.

**BURNET'S ESSAYS ON ART.**

BY H. P. ROBINSON.

FORTY years ago I became the happy possessor of Burnet *On Composition*. It was, I think, the first important book I bought, and since the date of that lucky purchase I have read no work which has been of so much practical use to me as an artist, although I have always been an omnivorous reader of books connected with art.

When the young photographer has learned all that chemistry, optics, and mechanics can teach him, and is able to produce, without much risk of many failures, what are called perfect negatives, he is often apt to think he has arrived at the end of his art, and has become a full-blown "artist." In former years this was eminently the case; and even to-day, notwithstanding the constant hammering away at the subject by writers in the photographic journals, more especially, I am glad to note, in the *PHILADELPHIA PHOTOGRAPHER*, there is still a plentiful lack of appreciation of the value of art in photography—or, shall it be asked in a whisper, do students really try to learn so comparatively simple a thing as the rules by which pictures are constructed, and fail to benefit by them? Anyhow, whether photographers don't try, or try and fail, there is still abundant exhibition of the absence of art qualities in a vast majority of photographs which aspire to the honorable position of works of art. There was some excuse for this in earlier times. Photography was merely a scientific pursuit, or plaything;

there was very little art teaching for the masses, and what there was to be had was not of the best, so that photographers may be excused for imitating for years the absurd conventionalities which they found in the works of even the best portrait painters of the time; there were few books available by writers qualified to teach, and perhaps the only one which was of real value was out of print: that book is the one I bought in 1848, and of which I now want to say a few words.

Burnet's *Essays on Art* were published at different periods. "Composition" in 1822, "Light and Shade" in 1826, and "On the Education of the Eye" in 1837. They have long been out of print, and the price, when they do occur for sale at second-hand book shops, is an enormous increase on the publication price. The artist who now possesses the four essays (for there is a fourth, "On Color," which would not be of much use to the photographer) esteems himself as the possessor of a treasure. All artists, therefore, as well as those who practice photography only, should be grateful to Mr. Wilson for producing in a handsome quarto fac similes of these invaluable works, and reproducing them so well, both as regards the letter-press and the etched plates. Were it not for the hot-pressed paper, and the superior get up, it would require an expert to detect the difference between the original and the copy.

It would be out of place for me to go into any elaborate description of the three essays. It would be like a twice-told tale, for the volume must by this time be in the hands of all live photographers. Yet for the sake of those who have not seen the book I may briefly allude to its principal characteristics.

The most important parts of art which it is desirable or necessary for a photographer to possess, are a knowledge of composition and *chiaro oscuro*. These two, thoroughly studied, the other parts—invention, for instance—may be expected to come to him as he progresses in his practice. I won't be tempted to say anything on the invention of subjects at present, or I could easily show how a knowledge of the two parts I have mentioned actually helps an artist to think.

In the essay on "Composition" Burnet explains what the subject is and means, and goes on to give a most lucid description of what may be called, for convenience, the rules of composition, but which, however, can scarcely be said to be reduced to strict laws, and illustrates what he says by examples from the works of famous masters.

In "Light and Shade" he begins by giving all the most self-evident and palpable combinations, and gradually leads the pupil to the consideration of more intricate subjects, illustrating everything by sketches; and in subjects of this kind a slight sketch is more useful than many words. As the author himself says: "Painting is a practical branch of philosophy and can only be rendered clear by satisfying the observations of the eye, as well as the reflections of the mind; this, perhaps, is the reason why so much has been written on the subject without those truths being made sufficiently obvious, which the writers wished to demonstrate." The education of the eye runs over many subjects interesting to the photographer, and there is a useful chapter devoted to invention.

Although published so many years ago, these essays are as fresh and useful as if written yesterday. Nothing new has been added to or taken from the fundamental principles of art since Burnet wrote, except, indeed, by the impressionist or naturalistic school, which ignores all that has gone before in art, from the time of the Egyptians to the present moment; but then, although some of the school are admirable *painters* they are not *artists*, if we are to accept the ordinary meaning of the much abused appellation. The simplicity of the writing of the essays is one of their greatest charms. You have only to read a paragraph, and look at the accompanying illustration and the meaning is clear to the most ordinary mind. The author has taken the greatest care not to overload his work. Every word and illustration is to the purpose; there is nothing superfluous.

It has been the chief wish of my photographic life (which, by the way, has been a considerable portion of the whole), to see the art-science truly attain the dignity of a fine art, and that must be my excuse for

recommending so strongly to the readers of the *PHILADELPHIA PHOTOGRAPHER*, both professional and amateur, to study carefully the best book on the subject, so admirably reproduced for them in this most welcome volume.

### THE OPEN CORNER.

PROVIDENCE, R. I., January 16, 1888.

Editor *PHILADELPHIA PHOTOGRAPHER*:

I was especially interested in your article entitled "Puzzled Photographers," in your journal of January 7th, as I have had an experience of the same nature. The print has been examined by several professional photographers, but none of them have been able to give a satisfactory explanation of the effect. My own theory in regard to the matter is very simple, and if it is correct, it seems to me that it would also apply to the case mentioned by W. Curtis Taylor. It seems much more plausible than the theory "that the lens was accidentally uncapped."

Wishing to take a photograph of my dog, I placed him upon a stone post, about fifty feet in front of my house, in strong sunshine. The sun was pretty well at my back, but the camera, placed about midway between the post and the house, was shaded by the shadow of the latter. I made an instantaneous exposure, and upon developing the negative I was astonished to see a clearly defined picture of the willow back of a piazza chair, which could be seen right through the dog and the post. I immediately went out to look for the chair, and found that the only one in sight was on the piazza of the house, almost directly behind the camera.

In showing it to a professional photographer, he was inclined to think that the effect had been produced by the reflection from the nickel-plated trimmings on the dog's collar. That did not seem possible to me, as in that case the image of the chair would have been distorted, whereas it was in good focus.

I have accounted, to my own satisfaction, for the phenomenon in the following manner: There was probably a small pinhole

in the back of one of the folds of the bellows; the light from the chair behind me passed through this small hole forming an image on the glass of the capped lens, which was reflected back upon the plate when the shield of the plate holder was drawn out, thereby producing the double image.

It seems to me that the case mentioned above is very much more complicated than the one referred to in your journal, and that the pinhole theory is a perfectly reasonable way of solving the problem. If the pinhole was there, and other conditions were favorable, an image would be thrown upon the plate, and if, after the shield were drawn, any changes of position were made, that portion of the background which was behind the model would be impressed upon the plate, and the novel effect referred to in Mr. Taylor's article would be produced.

Yours truly,  
AMATEUR.

A PHOTOGRAPH OF THE STAR *CAPELLA*.  
—At the Liverpool Amateur Society, Mr. Sadler read a learned dissertation on Stellar Photography, a subject which is much in vogue since the happy results obtained from an astronomic and photographic point of view, by the Messrs. Henry, of Paris, and by Professor A. Common, of London. All our readers probably know the beautiful star *Capella*, which shines over the northern horizon like a diamond of great price. To us it appears about the height of a house and a half above the ground, supposing that the house in question be distant a thousand paces from us. The scintillations are rapid and brilliant, showing especially the delicate green, the red, and the yellow, in rapid succession. This star has just been reproduced in the photographic plate, where it appears as a colorless speck. But this is curious: With the knowledge of the approximate distance of this star from the earth, and of the known rapidity with which light travels, it is possible to calculate the time taken by its light to reach the earth. Now it is found that the luminous vibration which has just acted upon the photographic plate, and given us an image of the star *Capella*, emanated from the distant sun since 1813, or about the time at which the

Emperor Napoleon I. made his campaign in Spain, so graphically described in the *Memoirs of the Duchess d'Arbrantès*, or say a year after our own war of 1812.

SOME of the questions with their pithy answers in the *German Amateur Photographer* are as follows:

Is the sensitiveness in the potash developer (according to Stolze's receipt) generally greater than in the iron developer with the soda first-bath employed?

The sensitiveness is pretty much the same, only the development is longer with the potash developer.

Is there used in the development with pyrogallol (potash) for increasing the sensitiveness, a first-bath similar to the soda-bath in the iron developer?

No first-bath is used in the pyrogallol development.

How many seconds long must the exposure be with magnesium light?

It depends upon the quantity of magnesium used, and it is not the duration of time that is to be measured, but the quantity of light.

Instantaneous pictures can be obtained with the powder.

The fourth paper on "Hints to Amateurs" contains much useful information, and gives illustrations of the kind of table to be used in the laboratory, also of the lighting contrivance, washing apparatus, and drying frame.

MR. HARBERS, of Leipzig, in describing his visit to the exhibition at Stuttgart, speaks of Harbers' pocket dark-room for travelling photographers.

This consists of a sack made of double, light-tight material, having on one side a red stuff through which the light can enter. Underneath is a round hole provided with a strap. In using this sack, it is laid upon a table, the cases and plates necessary for changing pushed through the round opening, and brought up carefully with the main body. The sack can be fastened to the arm with the strap. When standing before the table (a wall will answer this purpose in the open air) the changing of plates can be done conveniently. If anyone should be annoyed by the part of the material hanging down

on the side, Mr. Harbers has thought of an improvement in the form of a stand made of strong brass wire, which serves as framework for the sack. The whole arrangement, dark sack, brass stand, besides three different bottles with solutions for developing and fixing, with water-holder, developing and fixing-dishes, measure and whisk, or wiping cloth, costs, for plates 13 x 18 cm., 48 M.

AN exhibition of the work of the famous French artist, M. Puvis de Chavannes, has just been opened in the Durand-Ruel galleries in Paris. It was desired to make it as completely representative as possible, and to this end the artist placed his portfolios of sketches and studies at the disposal of M. Durand-Ruel, and many of his friends lent precious sketches and studies presented to them. But the most notable work of the artist has consisted of a large decorative composition for public buildings, which it was, of course, impossible to remove for exhibition. Photography was called on to solve the difficulty, and a number of fine prints present this department of production very satisfactorily. Painting of this class does not lose so much as less dignified work by the absence of color, and considerable admiration has been expressed for these photographs—some of them of considerable size, and all of much difficulty, being interiors.—F. H. W.

THE peripatetic photographer is a great feature in France at all fairs, races, and similar occasions. The rage for cheapness exists there, and tintypes rule at fifty centimes or ten cents a piece, while it is possible to obtain the regular article, carte-de-visite size, at five francs (\$1) a dozen—"resemblance guaranteed" says the sign outside. As most of the business at the fairs is done at night when their patrons of the working population are free, it is necessary to make engagements for lunch-time, the next day, or for Sunday. Not infrequently, said one of the profession, it is very difficult to make the aspirants to immortality understand that they cannot be "taken" immediately; and he has had the pain of seeing possible patrons disappear in the darkness after having uttered their ultimatum, "Now, or not at all!"—F. H. W.

THERE has been considerable discussion in the German journals of late, on the use of hydroxylamine in photography. Dr. Eder discusses it in Dingler's *Polytechnical Journal*. He says, as quoted by the *Photogr. Wochenblatt*, that this substance was first recommended as a developer by Egli and Spiller, in 1884, and in 1885. Muriatic hydroxylamine costs, according to its purity, from 300 to 800 M. per kilo. It can now be obtained for about 50 M. per kilo. A formula for this recommended by Egli and Spiller as well as by Scolik, is as follows:

A. 1 part of muriatic hydroxylamine, 15 parts of alcohol.

B. 1 part of etching soda, 8 parts of water.

For use 60 parts of water is taken, 3 to 5 parts of A, and 5 parts of B. The developer remains perfectly clear and colorless, the shades are quite unveiled.

**ISOCROMATIC PHOTOGRAPHY.**—In regard to the controversy between Messrs. Attout-Tailfer and Dr. H. W. Vogel touching the priority of the invention of isochromatic photography, it is well to recall the fact that Mr. Ives published in 1879, in the *PHILADELPHIA PHOTOGRAPHER*, the chlorophyl process, which may be considered an orthochromatic process worthy the name. It may also be remarked that the Attout-Tailfer patent makes no mention of the yellow screen which is absolutely indispensable for plates prepared with the alkaline solutions of eosine colors.—*L'Ama-teur Photographe*.

AT one of the late sessions of the Berlin Society for the Advancement of Photography, among various processes discussed, was the new Zirkonlight enlarging apparatus. The really new thing in this apparatus is the burner constructed by Prof. Linnemann—in this, both of the gases, carbon and oxygen, are mixed immediately upon leaving the burner, and besides, the use of Zirkon earth as an illuminating body is new. Linnemann's experiments prove that for the first while a good light is produced by a cement cylinder, but that after a short time holes as large as a pea are melted in the cylinder, and the value of the illumination is diminished.

Magnesium plates melt easier still than

lime, and it is Zirkon earth prepared in platina that offers sufficient resistance to produce for any length of time a uniformly bright light. The price of this apparatus for 9 x 12 cm. plates is from 250 to 300 marks, including copper retort for production and gasometer for preservation of oxygen. This apparatus is sold by the firm of Schmidt & Häusch, and the latter gentleman called the attention of the Society to the fact that the position of the illuminating lens must be altered according as the enlarged head has a longer or shorter focus, and that his illuminating lenses are adjustable.

**MAGNESIUM LIGHT, AND COLOR-SENSITIVE PLATES IN RUSSIA.**—Mr. Levitzky, court photographer, writes us that he has obtained most excellent results with Gædicke's and Miethe's magnesium light, and that these lightning pictures are, owing to the very short winter days, which often last only two hours in St. Petersburg, of the highest importance. He writes that he has also produced superior pictures by the use of Dr. Vogel's eosine silver plates colored in the emulsion. The superiority of these for taking colored bodies has been most convincingly proved and they have elicited great attention in the Imperial Polytechnical Association.

## HOW TO LOOK AT PICTURES.

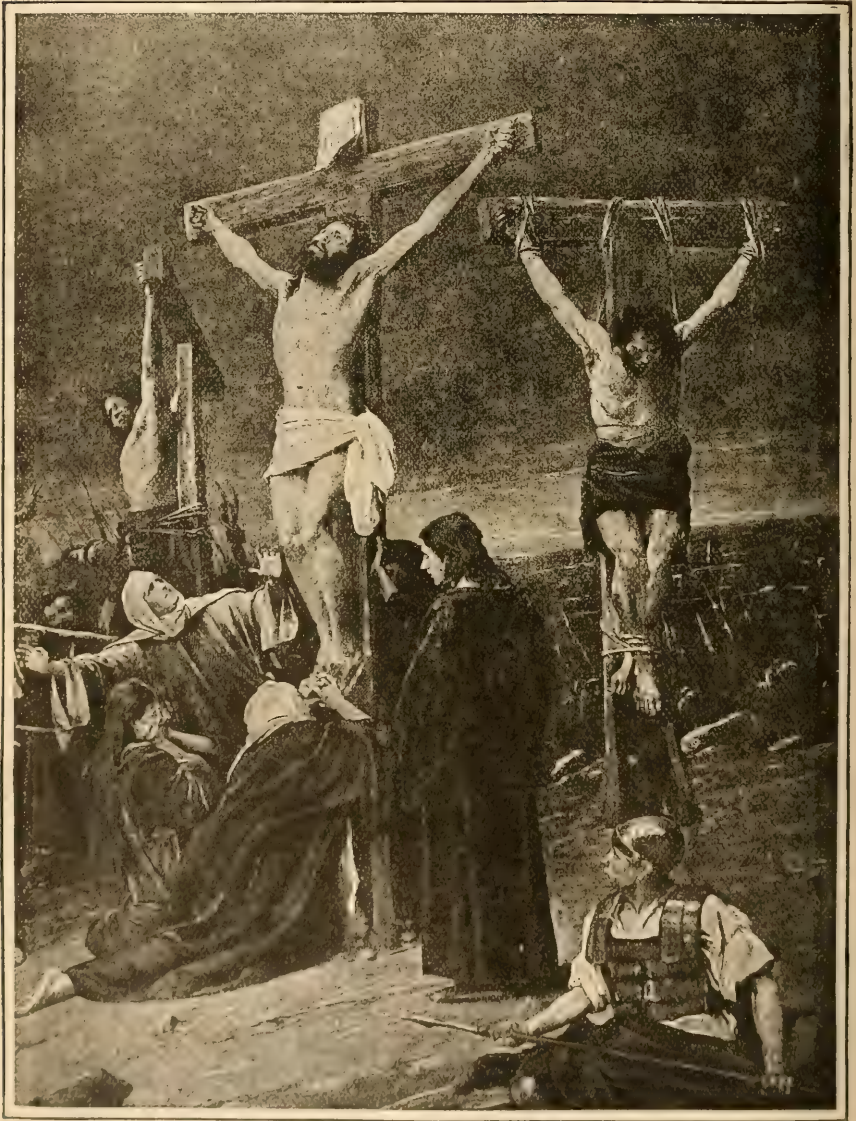


THAT the artistic feeling is growing among photographers no progressive friend of photography will deny. Especially is this so among the younger ones—among those upon whom the future growth, glory, and welfare of our art depends.

This being so, it behooves us to continue, more earnestly than ever, the work we

began over twenty years ago, of projecting upon, and injecting into, the minds of our readers, something that will help them to make progress in art culture. For this

was. For this reason, in the art chapters of our own *Photographics* and in our *Quarter Century*, we have endeavored to supply similar instruction with many and familiar



Christ on Calvary.—The Group of the Cross.

reason we have reproduced the winged words of Burnet, which, with their splendid, priceless illustrations, supply the clearest and soundest art instruction there is, or ever

illustrations—pictures easily possible for the camera to imitate and excel.

The pleasure and profit which comes from a thorough knowledge of art-principles is

beyond computation. Not only so to the photographer in the practice of his art, but whenever he examines paintings or other pictures for study and for pleasure. A ten-fold pleasure blesses the one who understands the principles of art, over that had by one who is ignorant of them. All pictures that are pictures, are created according to rule—upon the same principles.

We propose to give a few object lessons in this direction by reference to a great picture which is now on exhibition in our city, and which will presently be taken to other parts of our country. We allude to the "Christ on Calvary," by M. De Munkacsy, exhibiting under the management of Mr. Charles Sedelmeyer, the famed Parisian art-dealer. By the courtesy of Mr. Sedelmeyer we are provided with engravings to illustrate our points.

It may be said that "Christ on Calvary" is composed of two great sections united by a minor, yet none the less important, central section. The first and most important group—"the culminating point in the composition," is, of course, the one which gives the name to the picture.

We have here the variety which the educated eye first looks for in a picture. First, the conception, the perfect rendering of which is most apparent and the exact carrying out of which is wonderful. The composition is a marvel in suggestions of the pyramidal, diagonal, and circular forms. So much for the general features. When we come to the details, how wonderfully full of contrasts it all is. The Suffering Redeemer of the world, contrasted with the malefactors; the resigned John, waiting for the distracted Mother Mary; the kneeling and weeping Mary Magdalene at the feet of the pained Martha—the whole "Group of Grief," watched by the callous Roman soldier with drawn spear, who sits as sentinel in the foreground.

Separated from the surrounding figures,

the "Group of the Cross" supplies a magnificent study of lines, action, and contrast.

The connecting-link between this tragic section of the picture and the other is the



The Executioner.

"Executioner," who, having done his bloody work, is departing from the scene with his ladder upon his shoulder.

The Executioner pays no respect to those nearest him, prominent among whom we see the white beard and cadaverous face of "The High Priest," who seems to cry out, though with sinister smile, "If thou art the Son of God, then help thyself!"

Following, is the excited, surging crowd, the most prominent of whom, seated upon his white horse, is the scornful "Aristocratic Pharisee."

Following this group we come to the figures of the other section. First, "The Two Scribes." What a contrast is here in



The High Priest.



The Aristocratic Pharisee.

color and in feeling. One—the older, walks with bended neck and thoughtful mien, in doubt as to the justice of the crucifixion of Christ. The other, younger, haughtier,

Now to the studies of the great picture, before us, we may apply our art-knowledge and it will entertain and instruct us to examine how carefully the artist has fallen in



The Two Scribes.

argues with his sire with true, earnest demonstrativeness, heedless of the agonies borne by the sufferer close at his left.

Last of all, though not a true participant of the scene, is the figure of the panic-stricken, guilty betrayer "Judas."

with the rules of art made so plain by his predecessor John Burnet. If we do, the following further points will be discovered:

The contrast between the crowd, free to indulge in their brutality, and the bound and slowly dying thieves, with Christ, the

pure and holy one, between; or contrast the lamenting figures with the jeering officials on guard. We see fanaticism depicted to the life; doubt in the face of the old Scribe; discipline in the visage of the centurion; hatred in the face of the Pharisee; terror in the whole figure of Judas; coarseness alive in the face and carriage of the executioner; the mean indifference of the hireling in the soldier; and then there are the glories of composition—the sublime variety

## THE METRIC SYSTEM AND THE ADVANTAGES TO BE GAINED BY ITS USE IN PHOTOGRAPHY.\*

BY JAMES H. STEBBINS, JR., S.B., M.S.

WHILE reading over the September number of this Society's *Proceedings*, I came across an article by Mr. Robert B. Roosevelt, entitled the "Standard of Developers," and as I find therein contained many points worthy of discussion, I will take the



Judas.

of lines and contrasts of light and shade which delight the art-lover everywhere. All are given in a universal language understood all over the world by those who feel with the artist; a grand conception, magnificently carried out. The engravings can only give the color-values (in black and white), but in coloring also, M. Munkacz's work is a marvel.

If our readers cannot all see the great picture, they may, at one time or another, see the etchings and engravings of it in the art stores, when all this will come useful to them.

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IMPROVEMENT FOLLOWS.—Mr. C. BURR MARSH, Fayette, O., writes: "I have your *Photographica* and *Quarter Century* and they have been worth ten times the price paid for them, in the improvement of my work, after studying them."

liberty of making a few comments upon the same.

To begin with, Mr. Roosevelt says: "Nothing has stood more in the way of the amateur's acquisition of the best method of photographic manipulation than the confused and the confusing, muddled, misleading, and thoroughly unscientific way in which the formulas for developers have been made up." With this I fully agree, for to me, who am accustomed to use nothing but the metric system of weights and measures, the existing formulas appear as incomprehensible as Chinese.

Further on Mr. Roosevelt says: "A favorite plan of some reformers is the substitution of French for American weights and measures, and incidentally or indepen-

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\* Read before the Society of Amateur Photographers of New York.

dently, the use of ten per cent. solutions. These plans, one or both, have been pressed upon us as a correction of the difficulty, but they do not meet the case. We do not want a purely scientific manipulation, and the gramme will never be our Moses, nor foreign or unusual terms or scales guide us out of our wilderness."

In answer to these quotations, I would say that I appreciate the efforts of these reformers in trying to introduce a system of notation which is simplicity itself, and am only sorry that they did not succeed, as I think the metric system is eminently fitted to meet the case. The only explanation that I can give to its want of success, is simply owing to the fact that we Americans have been accustomed to use the English system of weights and measures, and will not take the trouble to thoroughly master the metric system, because it looks a little perplexing. I likewise fail to see why it is that we do not want "a purely scientific manipulation," provided it is simple and easy of comprehension. It is the custom of all scientific men and societies throughout the world to use the metric system, and as our Society is a scientific society, is it not time that we followed suit? I cannot see what grudge Mr. Roosevelt bears against the gramme, as it is just as tangible a unit as a cent. No one will say that it is a difficult task to divide a dollar into cents, and yet it is just as simple to divide a hectogramme into grammes, and I think that I will be able to convince you of this later on. I further quote: "What we need is something for everyday use that the least experienced, equally with the most expert, can understand at a glance, employ with absolute certainty, and remember without difficulty." I quite agree with this sentiment, and would say that the metric system fills all these conditions. I further quote: "Talking in centimetres or multiplying by decimals is a useless confusion." I was never aware before this that multiplying by decimals is a confusing operation. I was always much more perplexed when multiplying by vulgar fractions. As regards talking in centimetres, I would say that it is quite as easy to do this as it is to talk in dollars and cents.

Further on I find the following quotation: "A 10-grain solution, which is often mistaken for a ten per cent. one, would be entirely proper, but, a percentage of hypo, or any other solid, to water is closely allied with the result of multiplying ten oranges by ten pears." And so it is as long as English weights and measures are concerned, but it is entirely a different matter when the metric system is employed, because it is perfectly easy by its means to convert the measures of capacity into the measures of weight and *vice versa*.

It is further suggested in Mr. Roosevelt's paper that we should determine upon a certain formula of a fixed strength according to fluidrachms, and that solutions of this kind shall contain a given quantity of grains to the drachm. I do not see that this method offers much advantage over the ones now in use, as it would still entail the use of grains and drachms, which I consider exceedingly awkward to handle. Why not substitute the much abused gramme and cubic centimetre, and tackle the complicated decimals? There is no need for me to make any more quotations from Mr. Roosevelt's paper, as I think that I have already said enough to convince you of the muddled state of affairs, and this condition of things will exist so long as you persist in using English weights and measures. Therefore, contrary to Mr. Roosevelt's advice, I strongly recommend the use of the metric system.

As this system of weights and measures may appear complicated to some of you, I will now endeavor to make the matter clear.

The measure of length is called the metre. It represents the ten-millionth of the distance on the earth's surface from the equator to the pole.

The multiples of the metre are the dekametre, or 10 metres; the hectometre, or 100 metre; the kilometre, or 1000 metres; and the myriametre, or 10,000 metres. The sub-multiples are the decimetre, or  $\frac{1}{10}$  metre; the centimetre, or  $\frac{1}{100}$  metre; and the millimetre, or  $\frac{1}{1000}$  metre.

Please remember the terms deka, hecto, kilo, myria, deci, centi, and milli, as they are used throughout the whole system, and mean the same thing each time.

The unit measure of weight is the gramme.

It is represented by the weight of one cubic centimetre of distilled water at its greatest density, viz., 4° C.

The multiples of the gramme are the deka-gramme, or 10 grammes; the hectogramme, or 100 grammes; and the kilogramme, or 1000 grammes. The submultiples are the decigramme, or  $\frac{1}{10}$  gramme; the centigramme, or  $\frac{1}{100}$  gramme; and the milligramme, or  $\frac{1}{1000}$  gramme.

The unit of volume or capacity is the litre. Its multiples are the deka or 10 litres; the hectolitre, or 100 litres; the kilolitre, or cubic metre, 1000 litres. Its submultiples are the decilitre, or  $\frac{1}{10}$  litre; the centilitre, or  $\frac{1}{100}$  litre; and the millilitre, or cubic centimetre,  $\frac{1}{1000}$  litre.

There are some other measures, such as measures of surface, etc., but I will say nothing of these as there is no use for them in photography.

You have doubtless seen from the foregoing that the metric system is not so formidable as it appears. Its great advantages are its decimal character of notation and the ease with which it is possible to convert measures of volume into measures of weight. For example, suppose it should be desired to measure out 500 cubic centimetres of water, and our glass graduate could not be found, or was broken; then, bearing in mind that a cubic centimetre of water weighs just 1 gramme, place a 500-gramme weight upon your scales, and weigh the water out.

The great difficulty of understanding the metric system arises from the fact that in converting one system into the other we obtain fractional numbers which are very confusing. Therefore I say that if you want to fully comprehend the metric system, drop the English system from your minds entirely, and do not attempt to make comparisons between the two. Buy yourselves a set of metric weights and a fluid graduate, and you will have no further trouble.

To still further facilitate matters, I have converted the leading developer recipes into the metric system; and have done away with fractions as much as possible in order to prevent confusion. Of course the figures I give you are not absolutely correct, but

they are near enough right for photographic purposes.

#### DEVELOPER No. 10 FOR CRAMER'S PLATES.

##### *Alkaline Solution.*

Sodium Sulphite (crystals)	35.5 grammes.
Sodium Carbonate (crystals)	8 "
Potassium Carbonate	5 "
Water	500 c. c.

##### *Pyro Solution.*

Sodium Sulphite (crystals)	10 grammes.
Pyro	80 "
Sulphuric Acid	2 "
Water	500 c. c.

*Directions.*—For winter use 65 c. c. alkaline solution and 2 to 6 c. c. of pyro solution. For summer add to 34 c. c. alkaline solution, 34 c. c. cold water, and from 2 to 5 c. c. of pyro solution.

#### DEVELOPER FOR SEED PLATES.

##### *Pyro Solution.*

Sulphite of Soda (crystals)	185 grammes.
Pyro	30 "
Water	500 c. c.

##### *Alkaline Solution.*

Sodium Carbonate (crystals)	125 grammes.
Water	500 c. c.

*Directions.*—Add to 185 to 305 c. c. of water, 30 c. c. of pyro solution and 30 c. c. of alkaline solution.

#### DEVELOPER FOR RIPLEY PLATES.

##### *No. 1.*

Sodium Sulphite (crystals)	115 grammes.
Citric Acid	7 "
Ammonium Bromide	3.5 "
Pyro	50 "
Water	500 c. c.

##### *No. 2.*

Sodium Sulphite (crystals)	100 grammes.
Potassium Carbonate	150 "
Water	500 c. c.

*Directions.*—Mix 7 c. c. each of Nos. 1 and 2 with enough water to make 100 c. c.

#### FERROUS OXALATE DEVELOPER FOR RIPLEY PLATES.

##### *No. 1.*

Potassium Oxalate	250 grammes.
Water	1000 c. c.

Oxalic acid enough to make solution acid to litmus paper.

## No. 2.

Ferrous Sulphate . . .	80 grammes.
Sulphuric Acid . . .	0.5 gramme.
Water . . .	1000 c. c.

*Directions.*—To 64 c. c. of No. 1, add 31 c. c. of No. 2, and 1 c. c. of bromide of ammonium solution.

## DEVELOPER FOR EASTMAN'S PERMANENT BROMIDE PAPER.

## No. 1.

Potassium Oxalate . . .	330 grammes.
Acetic Acid . . .	9 c. c.
Water . . .	1000 "

## No. 2.

Ferrous Sulphate . . .	500 grammes.
Acetic Acid . . .	1.5 c. c.
Water . . .	1000 "

## No. 3.

Bromide Potassium . . .	31 grammes.
Water . . .	1000 c. c.

*Directions.*—Take 125 c. c. of No. 1, 20 c. c. of No. 2, and 1 c. c. of No. 3.

## CARBUTT'S HYDROQUINONE DEVELOPER.

## No. 1.

Sodium Carbonate . . .	55 grammes.
Water . . .	500 c. c.

## No. 2.

Hydroquinone . . .	15 grammes.
Sodium Sulphite . . .	75 "
Water . . .	300 c. c.

*Directions.*—No. 1, 10 c. c.; No. 2, 15 c. c.; Water, 65 c. c.

## PIFFARD'S HYDROQUINONE DEVELOPER.

Hydroquinone . . .	6 grammes.
Sodium Carbonate . . .	30 "
Sodium Sulphite . . .	30 "
Water . . .	450 c. c.

Use as mixed, and return to bottle for future use.

## HOOVER'S DEVELOPER.

## No. 1.

Sulphite of Sodium (crystals) . . .	80 grammes.
Citric Acid . . .	6 "
Ammonium Bromide . . .	3.5 "
Pyro . . .	42 "
Water . . .	500 c. c.

## No. 2.

Sodium Sulphite (crystals) . . .	80 grammes.
Potassium Carbonate . . .	125 "
Water . . .	500 c. c.

*Directions.*—For proper exposures take 6 c. c. each of Nos. 1 and 2, and 80 c. c. of water.

## PIFFARD'S PYRO DEVELOPER.

## No. 1.

Sulphuric Acid . . .	1 drachm.
Sodium Sulphite . . .	100 drachms.
Pyro . . .	25 "
Potassium Bromide . . .	1 gramme.
Water . . .	400 drachms.

Dissolve in the succession given, and add water sufficient to make the whole measure 500 c. c.

## No. 2.

Sodium Carbonate (crystals) . . .	50 grammes.
Potassium Carbonate . . .	25 "
Sodium Sulphite . . .	25 "
Water . . .	400 c. c.

Dissolve and add sufficient water to make the whole measure 500 c. c.

Take 10 c. c. of each and add 80 c. c. of water. These proportions to be varied with the exposure and kind of plate used.

## FACTORS.

*Weight Equivalents.*

To convert grains into grammes, multiply by 0.065.

To convert grammes into grains, multiply by 15.5.

To convert drachms into grammes, multiply by 3.9.

To convert ounces avoirdupois into grammes, multiply by 28.4.

To convert pounds avoirdupois into grammes, multiply by 453.6.

*Measure Equivalents.*

To convert cubic centimetres into grains, multiply by 15.5.

To convert cubic centimetres into drachms, multiply by 0.26.

To convert cubic centimetres into ounces avoirdupois, multiply by 0.036.

To convert pints into cubic centimetres, multiply by 473.

To convert litres into ounces avoirdupois, multiply by 35.3.

To convert gallons into litres, multiply by 3.8.

## FILTERED FROM THE YEAR BOOKS.

*From Photographic Mosaics.*

Now as to the office of the chloride of gold. It is, of course, well known that, by the chemical changes the print undergoes in its presence, a process of substitution

takes place, in which the particles of reduced silver forming the blacks of the image, are changed into metallic gold. The more complete the change, the more permanent are the blacks of the print, *and the colder the tone*, with our present method of alkaline toning. The warm tones are, therefore, more fugitive than the cold, bluish tones.—D. BACHRACH, JR.

After the day's printing is done, the prints are well washed in several changes of water, and then toned in a bath, as follows:

Water	. . . . .	60 ounces.
Chloride of Gold	. . . . .	8 grains.

Make alkaline with carbonate of soda in solution, and add about a level teaspoonful of common salt. This bath will tone about twenty or twenty-five sheets of paper. It is calculated that one grain of gold will tone one sheet of paper; so it will, and more. But we must bear in mind that there must be an excess of the gold, or toning principle, in order to set up the action; once started, it will continue until nearly, if not quite, exhausted.—CHARLES T. FELLOWS.

If photography can express ideas, there may then be a photographic art. If not, not. I will not now take it upon myself to say which way it is. Think it out; work it out for yourself.—W. J. BAKER.

It is a first-rate plan to focus upon a tall chimney, steeple, or building; study the thing from different points, on your ground-glass, with no plates, and profit by it.—THOMAS PRAY, JR.

Guard against any trace of diffused light, too much exposure to the colored light while developing, or having the colored light too strong.—G. CRAMER.

Remember the mild power is most effective for perfect results in developing. Don't give heroic treatment at the start in any case.—J. F. RYDER.

You can gain density and save pyro by using the maximum quantity of sal soda up to the hazing point.—D. H. CROSS.

If you take your plates out of the wash-water, however, and hang them up in an atmosphere charged with moisture, they will have a tendency to soften, and some will be wrinkled; but that will not occur if you use the alum solution between the development and fixing.—J. CARBUTT.

How are you going to know the difference in the plates? My dear boy, I can't tell you, you must FEEL IT! Development is as much a fine art as the painting of a picture. No one that is lacking in artistic feeling can ever hope to make a successful photographer.—W. J. MOZART.

Books on natural philosophy, astronomy, physics, and Wilson's *Quarter Century*, include departments devoted to the various forms of lenses, the formation of the image, the causes of spherical aberration, in fact, a valuable preliminary knowledge of photo-optics. It is surprising, therefore, that intelligent persons should persist in a search for an instrument which no optician has yet deemed it necessary to construct.—WILFRED A. FRENCH.

In other words, giving a dry plate properly exposed a developer with only enough alkali to set the pyro in motion would produce an image quite unbalanced; the pyro would act more quickly and effectively on the lights than on the shadows, so that the image would present two strange contrasts—the lights would be overdeveloped and the shadows would lack detail, the action would be too local.—E. M. ESTABROOK.

The photographer who would succeed must be an artist in the highest sense of the word—must not only understand his camera with its limited possibilities, the rigid rules of composition, and pictorial and picturesque effects, but he must also be led by what our editor would call "feeling"—feeling that can find "sermons in stones" or "books in the running brooks." He must be able to give his portraits not only perfect manipulation, but perfect spirit as well, thus making the countenance in truth the window of the soul.—CHARLES BUTTERWORTH.

Use only ice-water to dilute your developer to the desired strength just before developing. Don't develop too many plates with the same developer, and have constantly in mind that the warm atmosphere in summer melts ice, and makes your developer, with time, unfit for work. After developing, wash the plate in three or four changes of ice-water, and put it in *hypo*.—J. HEGYESSY.

When, therefore, the photographer brings to his work skill, ingenuity, refinement, good judgment, and æsthetic culture, together with the requisite scientific knowledge of the materials he uses, he is an artist by practice, and he will be recognized by his patrons and by the general public as the creator of works of art.—H. McMICHAEL.

Negatives too intense may, and can be safely reduced. This is best done directly after leaving the fixing bath, and before the hypo solution is washed out, by laying the negative in a weak solution of ferricyanide of potash, if a general reduction is desired, or it can be applied locally with a soft sable pencil, watching closely the reduction. Washing the negative stops it.—J. CARBUTT.

Every *live* photographer reads photographic books; and not only reads but studies them, thus becoming familiar with the wondrous progress of our art, and placing himself in a position to intelligently compete with those about him.

Books, as a medium of thought circulation, deserve the first place in our affections. For the present status of photography, and for the many hours passed in their company we should be truly grateful. If the world were deprived of books, it would lose one of its most substantial joys, for they are a profitable pursuit of unmeasured pleasure.—A. C. AUSTIN.

*From the American Annual.*

I contend that an ample exposure and slow development with a weak developer, retarded if necessary, will put more roundness and a better gradation of detail and intensity into an image on a dry plate than

any other method of treatment, and then, consider the convenience of being able to print a dozen easily from the same negative on any fine day.—E. M. ESTABROOKE.

I *think* it is folly to use quick plates where it is possible to employ slow ones. Slow plates generally contain more silver than quick ones, and therefore develop easier and quicker and secure more intensity. One or two seconds is not much out of a life-time, and a perfect negative is a very satisfactory thing. Not that perfect negatives *cannot* be obtained from quick plates, but I contend that at least 75 per cent. more of perfect ones can be realized from the use of moderately slow plates.—N. W. STARBIRD, JR.

In regard to exposure. I am apt to rather overexpose and retard in the development very considerably, and sometimes I add as much as twenty-five or thirty minims of the bromide to the developing solution as given above.

There is another very necessary ingredient to secure success, which I omitted, and that is, from one to twelve pounds of patience. With judgment and plenty of this patience, no one should fail in the proper use of this developer.—A. S. MURRAY.

The so-called "detective" cameras are very well in their way, yielding pictures which could not be got in any other manner, and producing lots of "fun;" but for the highest class of instantaneous pictures—photographs which shall be good technically—they are of little use. For high-class work I recommend a whole-plate camera fitted with a "finder" as described above, and armed with a good lens and Grinston shutter. Then you must have trained models to help you, the "effects" must be rehearsed carefully before hand, and you must be at the right place (say the seaside), at the right time of the year (April to August), and work at the right time of the day (ten to one).—W. JEROME HARRISON.

So accomplished a photographer and essayist as H. P. Robinson, says there can be no question that ninety-nine per cent. of

the immense mass of photographs that are produced year after year have no claim to rank as art. There can be no doubt that by the aid of photography, the most charming and satisfactory portraiture in the world can be made. But it must be the work of an artist, and such productions must be mainly personal work—personal work in the sense that a painted portrait is the work of one man who works from his own conception and studies of his subject. Let us hope that in this field of portraiture there is in the future a higher mission than photography has yet accomplished.—G. L. HURD.

The man who is most of an artist, surely gets the most true enjoyment out of what he sees. "All the world's a"—picture to him, and wherever, whichever way he looks, the elements of things about him form pictures for him—things seem to run together for him just as promptly as the molecules of silver in the film 'respond to the touch of the developer, and run, leap, fly! to their places, in order to build up the lovely image. The street, the church, the museum, the home, the train, the art gallery, alike hold the latent images. He is the developing agent; he applies *himself*, and pictures are produced for him wherever he looks.—EDWARD L. WILSON.

There has always, to those who limit their ambition to what can be produced on one plate at one exposure only, been a technical difficulty in the way of any attempts of the photographer to obtain these pictures—the difficulty of getting focus and definition in sufficient depth. It is found that in the endeavor to get a large figure in the near foreground, with a distant scene as background, any approach to possible focus is hopeless; one or other must give way. Now, although I do not object to parts of a picture being judiciously a little out of focus, any quantity of undefined smudge is not to be tolerated. Therefore, these very tempting subjects must be given up, or done in some other way. Fortunately there is another way. By the aid of combination printing, subjects beyond the reach of ordinary photography may be successfully grappled with.—H. P. ROBINSON.

A speedy return to this class of photographic work is among the certain events of the future; those of the old amateurs, who, like the writer, have taken up this almost forgotten style of picture during the past summer, are all wondering why they had ever been induced to lay it aside, and are to-day more enthusiastic in its praise than ever before. For this enthusiasm there are many reasons. The apparatus used is very portable. Views suited to this kind of picture are to be found by the hundred, while for the larger sizes,  $6\frac{1}{2} \times 8\frac{1}{2}$  and  $8 \times 10$ , greater study and attention to detail and light are required.—CHAS. WAGER HULL.

I doubt not there are many now, who see but little of the splendid collection of photographic literature, and content themselves with the idea that there are few mysteries connected with their business that the world knows not of.

Happily nearly all these narrow-minded and worn-out notions are passing away, and in their place we have the question of art principles, together with the harmonizing of light and shadow, the dark-room manipulations. Those who have a knowledge of these points will be known as being in the advance.

Many living in the smaller towns and cities, complain of not having material to make pictures, that they may compete with what they have been pleased to call their more fortunate brethren in the large cities.

This is all a mistake. There was a time when I, too, looked upon this in the same light, but now I begin to realize how many beautiful and rustic scenes and subjects were passed by that I would be glad to recall and make use of now. I begin to realize that the study of photography, the same as in other branches of knowledge, is a never-ending struggle.—H. McMICHAEL.

The artist's hand, unaided, can never reproduce in all its details, and delicate shades of color the natural scenes and objects which they attempt. While the camera, so far as form is concerned, and the varying degrees of light and shade, can give an absolutely correct copy of the landscape or figure before it, and only awaits the discovery of

how to retain the natural color shades to become, in its way, the perfect artist which the naturalistic painter is vainly striving to become.—W. I. LINCOLN ADAMS.

It has been my fortune during the past two or three years to inspect so many photographs of landscape subjects, most excellent technically as photographs, but utterly lacking in natural and artistic effects, that I feel constrained to submit a few lines special pleading to the great and constantly growing army of amateurs, that they will earnestly endeavor to give us *pictures* as the result of their labors. A photograph may reproduce any scene, with perfect fidelity to nature, and yet be utterly lacking in all essentials that give such a charm to the original. Two operators attempt the same view. The one presents us with a "thing of beauty," glowing with the spirit and fire of nature; the other, a flat, maplike reproduction of the scene; a body without a soul. It is quite as possible for the photographer to infuse his individuality into his work, as for the artist in colors or monochrome to do the same thing. A judicious choice of position, of lighting, of composition, will give many a charming picture, of what to the untrained or unsympathetic eye seem most unpromising subjects.—W. H. WALMSLEY.

*From the British Journal Almanac.*

Of course, no one will think of applying heat to hasten the drying of gelatine negatives nowadays, though that has been done with comical consequences; but rapid drying is desirable, and the safest way to effect that is to immerse the plates, after washing, in a bath of methylated spirit, set them well apart in the draining rack, and place them where a good current of air can pass freely between. If these conditions are carefully observed, it will be almost impossible to ruin negatives by producing such transparent patches as I have described.—J. WERGE.

But I must add that one of the forms of blisters, those abnormally large ones, say, of the size of a shilling or a half-crown, and where there are, perhaps, but one or two upon the whole sheet of paper, and some

sheets without one at all, are the result of the paper being desiccated by lying in a heated room previously to being sensitized, whether the heat proceed from a fire or from the rays of the summer sun. Moral: Store all albumenized paper in a perfectly cool, even if slightly damp room, and never lay it upon the silver bath in any other condition. This being premised, the monstrosities spoken of should never put in an appearance.—G. H. E. SUTTON.

One other instance I would refer to as proving the fallacy of green negatives taking a long time to print. I have by me one of a series of London views, taken during the last few months, which, if judged by its color, would be almost universally condemned. The exposure was exceedingly rapid, and forcing the development resorted to in consequence: yet not only is it a negative yielding a really good print, but it is about the quickest printing one of the whole series.—WILLIAM COBB.

Let the present generation profit by the many surrounding opportunities, and not be like the inhabitants of the city of Bath, who leave the benefits derived from its waters solely to strangers. Then printers need never fear being in the position of the organ-blower whose claim to a share in the production of the *Messiah* was met with contempt, but they will be recognized as honest workers in the field of science, destined, perhaps, to bring about the perfection of photographic printing.—J. HUBERT.

The easiest and in every way most satisfactory method of preparing the glass, is to immerse the thoroughly clean plates in a weak and very hot solution of gelatine about twenty to thirty grains to the pint, and then to dry them while hot, with a clean cloth.—ALEXANDER MACKIE.

A good deal has been written lately about the prevention of halation in negatives, but, so far as I have seen, very little concerning any remedy for it when it has made its appearance, I suppose on the principle that "Prevention is better than cure."

The remedy I find most useful is to rub the portion of the negative affected by the

halation with a piece of chamois leather wetted with methylated spirit. The best way is to cover the top of one finger with the chamois, and rub the negative with a circular motion, changing the part of the chamois as it becomes black, and taking care to keep it well wet with the spirit. When portions of a negative are found to be over-intense they can be reduced by the same method.—J. W. LAPHAM.

As the great object of photography in the amateur's hands is the production of pictures, either to serve as reminiscences of spots visited or to show evidence of artistic skill, it has always seemed to the writer that the fewer perplexities connected with the manipulations the better. The less cumbersome the preparatory stages the more likely the attainment of final success; and as the completed picture is the main thing to be considered, it matters little what method is employed to obtain it. Complicated cameras and a huge battery of lenses may easily be dispensed with, and expensive plates discarded.—REV. B. HOLLAND.

Interior work can be done best with plenty of exposure on a dull day, or, rather, when the sun does not shine in brilliant patches on the walls and floor; for, however one may admire these "Jacob's ladders" and the dancing motes ascending and descending, they are beyond the reach of the camera to represent truly, and will probably spoil your picture. In developing use but little pyro, and have your developer well watered down.—RICHARD KEENE.

The following mounting medium, which will keep for months, is very simple to prepare, and may prove useful to those who wish to have something ready for use at a moment's notice, as it does not thicken and possesses adhesive qualities equal to glue.

Procure half an ounce of the finest white gum arabic and carefully pound this to a very fine powder in a mortar, then mix with it about three times its bulk of dextrine, adding about a couple of ounces of water so as to form a thick, smooth paste; finally dilute it with five ounces more water, and then boil by means of a water bath for

fifteen minutes, stirring it continually all the time. It may then be poured into a wide-mouthed bottle, and after the addition of ammonia is ready for use. A stiff brush inserted in the cork will add to its usefulness.—CHAS. A. PARKER.

Dissolve one ounce of pure citric acid in four ounces of distilled water. Measure out four ounces of the solution so formed, reserving the other portion, and neutralize the four ounces with solution of ammonia (liquor ammonia), adding it carefully in small quantities at a time, and testing with litmus paper after each addition. When perfectly neutral add to it the reserved portion of citric acid solution and five grains of common salt. This forms the solution of ammonium citrate.

A solution of ferrous sulphate is now prepared by dissolving two drachms of the salt in one ounce of distilled water, acidified with a drop or two of sulphuric acid.

To develop, use three volumes of citrate to one of iron.—CLEMENT J. LEAPER.

When an interior, such as that of a parlor, is photographed, a certain degree of hardness and patchiness often results from the windows being kept open during the exposure. A softer and better effect may be obtained by keeping the blinds down during the greater part of the time. This softens and diffuses the light, although it increases the time; just previous to closing up the camera, the blinds may be opened to give the necessary high lights.—J. HAY TAYLOR.

## THE WORLD'S PHOTOGRAPHY FOCUSED.

THE PLANET VENUS.—It is said that the brilliancy of this splendid planet offers a serious obstacle to the telescopic study of its surface. It is yet to be seen how far photography may be able to overcome this difficulty; the brilliant rays which affect the eye may not perhaps have the same action upon a sensitized plate.

HELIO-ENGRAVING. — The reproduction of old prints, by means of photography

(helio-engraving), has reached so great a degree of perfection, that at one of the last meetings of the *Berlin Photographic Society* M. Runge declared that the most skilful *connoisseurs* can no longer tell the photograph from the original.

**A GELATINE PLATE PRINTED AS A POSITIVE.**—Another curious experiment; this time at the *Birmingham Photographic Society*, where Mr. Griffiths showed an image on a plate obtained under the following circumstances:

Having observed since a long time, said this photographer, that ordinary dry plates changed color when exposed to daylight, he placed one back of a negative and exposed it to light (November) for a few seconds. At the end of this time, the image was imprinted on the plate, and for an indefinite time it was exposed to the light; this image did not become darker. The author exposed, for *fifteen to twenty days*, plates thus treated, but the image underwent no change, and he thinks that it may be preserved for an indefinite length of time. To explain this fact, Mr. Griffiths believes that bromide of silver alone cannot give a dark image; that there must be present some chloride, and that in ordinary plates there is always a little chloride, coming from the sea salt in the gelatine.

**REMOVAL OF THE SENSITIVE FILM BY HYDROFLUORIC ACID.**—We pointed out, some time ago, that a greatly diluted solution is very convenient for removing the film from gelatino-bromide plates. It sometimes happens that we wish to remove the film from a number of old spoiled plates, and rubbing cannot be resorted to without running the risk of injuring the plate. Mr. Lang has made use, for this purpose, of a solution of hydrofluoric acid; the commercial article, which he dilutes in twenty parts of pure water. If the acid solution be stronger, the film detaches itself more quickly, but at the risk of injuring the polish of the plate.—*Moniteur*.

**NATURAL COLORS AGAIN.**—Mr. Thomas Bolas has repeated the experiments of Mr. Staats, on the production of the natural

colors of objects upon a silver plate treated with perchloride of iron. He has had some success, and we shall revert to this subject later.

OUR English, French, and German contemporaries are teeming with excellent papers of late. We have several selections—on Platinotype—Art—Portraiture and Development, in type for our next number.

THE "Flash-light" seems to have awakened the entire photographic world.

FILM photography is more popular abroad than here where it was perfected. Another season will probably show a great change in this direction.

A SOBER correspondent of the *British Journal* asks, "Can anyone inform me if it is true that a plate of plain glass, "exposed" as usual, will yield an image when breathed upon?" Where is his breath?

*The Amateur Photographer* (London) has been enlarged and improved in appearance. Congratulations and best wishes. There is nothing like success. One of the *best* things our contemporary has done is to instigate its patrons to help supply prints for hospital and orphanage asylums.

MR. T. C. HEPPORTH is contributing a series of papers to the *Amateur Photographer* on *The Optical Lantern*.

"SL-o-o-o-w-w-w development" is the proper cry which comes from abroad.

THE Camera Club has begun its splendid series of instructive meetings alluded to in our last and has most charming success.

THE Dallmeyer lenses are forged in England. How preposterous. Can any one expect to equal such inimitable tools as the D. L.? Who would focus on such a fraud?

COLLODIO-CHLORIDE is coming up again. How often photo-history is repeated.

AN Aristotype picture on Dr. Liesegang's original paper is being prepared for our embellishment presently. Be careful how you go into it now.

**POSITIVE PRINTS BY THE ACTION OF BOILING WATER ON A NEGATIVE.**—At the *London Photographic Association*, Mr. Cowan called attention to a singular method for producing a positive print, namely, by destroying a negative by means of hot water.

Having placed before the eyes of the members a very strong positive print, obtained in this manner, Mr. Cowan explained that it was made after the ordinary development with pyrogallie acid and fixing; and after having exposed the plate, still wet, to the action of daylight during one or two hours; the boiling water dissolves the gelatine and leaves a positive image. Up to the present time the explanation of this singular phenomenon has not been given in a satisfactory manner.

**MICROPHOTOGRAPHS OBTAINED WITHOUT THE MICROSCOPE.**—Mr. Traill Taylor says that it is possible to obtain very good microphotographs of objects which do not require very great enlargement, without the aid of a microscope, by making use of an ordinary photographic lens of short focus.

The little combination lenses, used in making prints of the size of postage stamps, are very suitable, he says, for this purpose.

### THE HIAWATHA COMPETITION FOR THE BLAIR CUP.

A MAGNIFICENT subject has been chosen by the Executive Committee for the Blair Cup competition, which, as we have already



The first study is from Part VIII.

HIAWATHA'S FISHING.  
Forth upon the Gitchee Gumee,  
On the shining Big Sea-Water,  
With his fishing-line of cedar,

Of the twisted bark of cedar,  
Forth to catch the sturgeon Nahma  
Mishe-Nama, King of Fishes,  
In his birch canoe exulting  
All alone went Hiawatha.

announced, is Longfellow's poem of "The Song of Hiawatha." Not only is it full of glorious suggestion and rich in pictorial variety, but it is distinctly American. It will, therefore, give the photographic art aspirants a fine opportunity to show their knowledge, skill, and feeling for the poetical and beautiful. It ought to serve as a most energetic developer of the talent which undoubtedly exists in our Association. For some reasons we have thought it would be fairer to all if we remained quiet on the subject; made no suggestions—nor tried

to cut out any patterns for the aspirants. Moreover, that it might be best to let all find their own way without a guide. Such a course would be more acceptable, we know, to the more talented ones. But for those who are less privileged in opportunities to study works of art, or to consult the more elaborately illustrated editions of *Hiawatha*, it seems very clear that it is our duty, as a public teacher, to throw out a few hints which may be equally available to all. We do not think such a plan will deprive any man or woman of a single original idea



The second suggestion is from Part X.

#### HIAWATHA'S WOOING.

The occasion was when the "lovely Minnehaha" sat with her father at the wigwam door just before the coming of Hiawatha —

"Of the past the old man's thoughts were,  
And the maiden's of the future.

He was thinking as he sat there,  
Of the days when with such arrows  
He had struck the deer and bison.

"She was thinking of a hunter,  
From another tribe and country,  
Young and tall and very handsome."

Half a hundred Indian genre pictures are to be found in Part X.—pictures of love and sentiment.

or conception, or prevent any one from doing far better than anything suggested by what follows.

By the generous courtesy of Messrs. Houghton, Mifflin & Co., Boston, the well-known publishers of Mr. Longfellow's works, we are enabled to supply four illustrations of the text. They are offered simply to start the thoughts going, and not as patterns. They are only intended to convey, in a measure, the conceptions of the various artists whose work they are, of the meaning of the lines of the immortal bard. Any photographer may take these same lines and, by his productions, give evidence of an entirely different sense of the sweet song, which will suggest very different

thoughts and feelings. These pictures need not disturb any one's imagination—they are only intended to serve as tiny rays of light which shall set to going a series of images which, developed by the thought of our masters, shall redound to the glory of our art.

Therefore, let your imagination fly—let your conceptions rise—let your art-knowledge bear the yoke with you, and press to the race your best technical knowledge. Enter the contest as courageously as did Hiawatha when, with drawn bow, he hunted the roebuck, and sent forward "the singing, fatal arrow!"

Messrs. Houghton, Mifflin & Co., publish and own the copyright of three or more edi-



Now we come to the Part XIII.

#### BLESSING THE CORNFIELDS.

The maize-planting is ended; the summer is past, and the husking season is at hand. All are engaged in the "gamesome labor" of the ingathering.

"And whene'er some lucky maiden  
Found a red ear in the husking,  
Found a maize-ear red as blood is,  
'Nushka!' cried they all together,  
'Nushka! You shall have a sweetheart!  
'You shall have a handsome husband!'  
Ugh! the old men all responded."

tions of Longfellow's poems, one of which is a very handsome large quarto edition in three volumes, illustrated by a score or two of the best American artists. Hiawatha alone can be had from 30 cents to \$1 a copy. One or the other of these the would be prize-taker should provide himself with and thoroughly study it before trying a single picture. First become *full* of the poem and then let conceptions rise.

We have selected such illustrations from the various editions as are possible for the camera to do, and such as afford a pleasant variety of sentiment, occasion, and style. We earnestly submit them, with the lines

pertaining to them, without further comment.

And here we halt. Surely we must have started interest in the subject, and we now leave it with the contestants.

Mr. Landy has had made a much more beautiful engraving of the Blair Cup than the one we have already presented, and has adopted it as the imprint upon his pictures. He has grouped around it, facsimiles of some of the medals he has won. The engraving is all in such pretty style that we make place for it here, with the hope of stirring our ambitious readers to still more zeal. Even though Mr. Landy should come



A more sorrowful story is depicted by the final picture. It is from Part XX.

#### THE FAMINE.

Returning from a vain search for food Hiawatha found that Fever and Famine had—he

Saw his lovely Minnehaha  
Lying dead and cold before him.

Then he sat down, still and speechless,  
On the bed of Minnehaha,  
At the feet of Laughing Water . . .  
Seven long days and nights he sat there,  
As if in a swoon he sat there,  
Speechless, motionless, unconscious  
Of the daylight or the darkness.

out of the contest a second time as champion, the experience every one else has in the affair will be helpful and improving, and will surely result in good, for all who try will be, like the people

"From the distant land of Wabun."

"Coming nearer, nearer, nearer."

its agreeable sensation of surprise and interest. I say surprise, because it is wonderful how you keep up the standard of excellence in your *Picture*. To an artist such a production alone as the scene from the "Tam-ing of the Shrew" is a thing for the thoughts to recur to at frequent intervals with satisfaction. Its picture (like an "Old Master")



## ART FOR PHOTOGRAPHERS.

BY XANTHUS SMITH.

I HAVE had it upon my mind for some time to write to you to tell you how much pleasure I have had in the receipt of the numbers of the "PHILADELPHIA PHOTOGRAPHER," each one as it comes furnishing

like atmosphere and tone, are very remarkable; and Mr. H. P. Robinson's "Carrolling," so beautifully reproduced in the last number, is a masterpiece in art photography. It should be seen and studied by every one using a camera out of doors, so full is it of useful lessons in the best art principles. But to come to what now compels me to

take up the pen, is to hail you as a benefactor in placing within the reach of artists that invaluable work, Burnet's *Art Essays*. Written, as it was, at a time when art had shot up with a new and vigorous growth, it comprises a clear fountain-head of knowledge upon the subjects of which it treats, free from all the rubbish of "ites" and "isms" with which we have since become more or less befogged. It is above all the book to be read and studied first in entering upon the path of art. If you read no further, one may almost venture to say you have read enough; if you do, you will read with a well-founded judgment which will enable you to separate the clear metal from the dross.

Our own copy, in father's possession now nearly fifty years, is well worn, not only from lying constantly by our hands, but from being occasionally loaned to the very few who might be trusted with so valuable a book. He and I were delighted when we saw the announcement that you had really published a new edition, because we felt it was almost as much a necessity to any one entering upon the practice of art as the actual implements for work.

Owing to Burnet's thorough acquaintance with his subject and his clear, simple style, he imparts the knowledge to be conveyed in the most pleasurable way imaginable. The illustrations add immeasurably to the value of such a work, in giving in a moment a clear comprehension of what is meant; and as Burnet selected the examples from good works of the most eminent masters, and etched them with his own hand, they possess a meaning which is best expressed in his own words: "One reason why the drawings of eminent artists are superior to all others is the great intelligence every line indicates, the smallest touch being expressive of the character."

Great credit is due you for having performed your undertaking in so thorough a manner. No mean muddy little edition, but a fine clear work, all admirable like the original. And the illustrations from the process employed not losing an atom of the value of the originals.

I cannot close without saying that I think the treatise on the "Education of the Eye,"

alone, makes the book one that should be in the household of every intelligent family where there is sufficient refinement to induce a disposition to an understanding of art and its aims, even though not practicing it in any of its branches.

I hope sincerely on your own account, and above all on account of the great service the work will do the cause of art, that the sale of it may far exceed your most sanguine expectations.

1020 CHESTNUT ST., PHILADELPHIA.

January 24, 1888.

### OUR PICTURE.

The "Ready for Action" presented as the embellishment of this number is intended to serve as an admirable study in *light and shade*. The picture so readily tells its own story that we need hardly make a suggestion. All who are familiar with the docks, levees, wharves, and quays of a large city have many a time and oft witnessed such a quartette as is here depicted, waiting the incoming of the larger craft from the sea, or the outgoing of the excursionists, "ready for action."

Let us get away from Mr. Howells' real grasshopper, however, and soar a little into the ideal. Our occasion is a photographic excursion. The empty freight cars on the right tell how the apparatus and tons of dry plates have been brought down to the river from the suburban and other homes of the excursionists, and the empty wagon on the left whispers of a fine stock of provisions. Everything and everybody is now aboard the nervous, muscular little vessels; we give the signal, and from this port we are able to start and go to the four quarters of the globe. We shall not go so far this time, however—only for a limited excursion up the stream of Art, among the glories of *light and shade*. Our pilot is Mr. John Burnet. But, as he speaks in a language foreign to many of our readers, we propose to act as interpreter, and start the conversation. In the beginning of his admirable essay, Mr. Burnet says:

"Before proceeding to investigate light and shade in their various intricate situations, it may be proper to notice a few of the more

palpable and self-evident combinations, and for the better comprehending of which, I shall divide them into five parts: *viz*, light, half light, middle tint, half dark, and dark.

"When a picture is chiefly composed of light and half light, the darks will have more force and point; but, without the help of strong color to give it solidity, it will be apt to look feeble; and when a picture is composed mainly of dark and half dark, the lights will be more brilliant; but they will be apt to look spotty for want of half light to spread and connect them; and the piece be in danger of becoming black and heavy; and when a picture is composed chiefly of middle tint, the dark and light portions have a more equal chance of coming into notice; but the general effect is in danger of being common and insipid.

"Light and shade are capable of producing many results; but, the three principal are relief, harmony, and breadth. By the first the artist is enabled to give his works the distinctness and solidity of nature. The second is the result of a union and consent of one part with another; and the third, a general breadth, is the necessary attendant on extent and magnitude. A judicious management of these three properties is to be found in the best pictures . . . and ought to employ the most attentive examination of the student; for, by giving too much relief, he will produce a dry, hard effect; by too much softness and blending of the parts, wooliness and insipidity; and in a desire to preserve a breadth of effect, he may produce flatness.

"Relief is most necessary in large works; as their being seen from a greater distance than easel pictures prevents their looking harsh or cutting, and gives them that sharpness and clearness of effect so necessary to counteract heaviness.

"Harmony or a union of the different parts of a composition depends upon the intermediate parts serving as a link or chain, either by conveying a sensation of the same colors with those in immediate contact, or by neutralizing and breaking down the harsh asperities of the two extremes, and thus producing a connection or agreement.

"Breadth of effect is only to be produced by a great extent of light or shade pervad-

ing the picture. . . . If a breadth of shadow is required, . . . the picture ought to be made up of middle tint and half dark. In the one treatment the darks ought to tell sharp and cutting, which is the characteristic of strong daylight; in the other the lights ought to appear powerful and brilliant, enveloped in masses of obscurity.

"The influence of shadow upon any composition, when carried beyond the necessary depth for the relief or distinct marking of the several parts, is breadth, from its absorbing many of the half tints and rendering the darks less cutting; and repose, from there being fewer of the outlines visible; hence arises a certain grandeur attendant upon space, and an agreeable sensation, from the spectator being allowed to exercise his own fancy in embodying indistinct forms. If we allow ourselves to be influenced by the association of ideas, it is capable of imparting a greater degree of horror to any subject of terror; as imaginary dangers appear greater than real, being augmented by the operations of the mind. Milton has made use of this quality in describing the situation of the Fallen Angels:

'From those flames

No light, but rather darkness visible  
Served only to discover sights of woe.'

"Having thus defined some of the characteristic features of shadow, the effects of light in a great measure explain themselves, being in most instances of an opposite nature. Its cheerful influence operates on the mind of the spectator, either when viewing the festivities of a village holiday or when he beholds it diffused over the general face of nature: it may be termed the Allegro in Painting."

Now, truly with these preliminary glimpses the art-student is ready for further travel in the realms of black and white. During the coming season more cameras will be made "ready for action" in this direction than ever before. May art sway them in the right direction and show every camera-lover how and when and where the light must predominate in a picture; how the shadows should be massed; how one

part must be united with another by means of a repetition of the light; how the lights and shades should both support and both oppose; when they should join, and when be scattered here and there; when the shadow should stalk through the picture and when the light should streak its way across; when the middle tints must be called in to soften the harshness of the stronger parts—when light and shade in soft degree should be enhanced by darks introduced by figures—yea—may art teach them a hundred lovely thoughts and feelings through its poet John Burnett, whose forty-five grand pages on “*Light and Shade*” are full of suggestions, which, when once absorbed, are always “ready for action.”

We dare not suggest more now, lest our impatient little craft move away and leave some behind.

Mr. F. Gutekunst, of Philadelphia, has provided us with an admirable example of phototype-printed *light and shade*, from one of his own negatives. Measure it with the rule and callipers of Mr. Burnet, if you will, and the more you do so, the more you will become convinced that “*Ready for Action*” is a work of art.

### SOCIETY GOSSIP.

At the session of the Berlin Society of Photography, on December 9, 1887, the President exhibited some very interesting pictures, taken by Herr Schindler. These are architectural pictures, photographed from the magnificent paintings in the interior of the Church of the Redeemer, Moscow. Such artists as Simiradsky, Wereschagin, etc., contributed to the beauty of this very tasteful tabernacle. There were also photographs of the fine sculptures of Klodt, Langanowsky, and Ramasanow, which as high-relief adorn the outer walls of the building above the portal. Herr Schindler (of the firm of Scherer & Nabholz) had the good fortune to be able to use the scaffold, after the building was finished, for setting up his apparatus. Now such pictures as these would make the labor of setting up so great, that hardly any one would undertake it, even if permission were given.

The picture of the ceiling of the inner dome, with the picture of the “*Holy Trinity*,” is worthy of note. This picture was taken with the apparatus arranged perpendicularly from above.

Mr. Schindler, Jr., student of the Imperial High School, adds some explanations. The pictures were produced with collodium-coffee dry plates, nine years ago, and the exposures often lasted, because of the twilight of the church and the deep brown tone of the interior, a whole day. The successful reproduction of the masterpieces of architecture, sculpture, and painting, is well worthy of acknowledgment.

The President called attention to the fact—proved by the picture of the dome—that nine years ago ceiling pictures were successfully taken from a perpendicular direction.

It was also remarked that the picture of the ceiling of the Sixtine chapel, with the celebrated frescoes of Michael Angelo, were done still earlier by Braun, of Dornach, at least before 1875. The ceiling of the Denderah Temple, in Egypt, was photographed in 1868, and by Edward L. Wilson in 1872.

The President was enabled, through the kindness of Herr Raschdorff, to lay before the members three original pictures of the last solar eclipse, taken in Tokio, Japan, having on them Japanese directions; also sun-crescents. These, also, appear negatively, or black. The question was raised as to the cause of this appearance.

The President laid it to an inversion of the sun-picture caused by over-exposure. Redner reported that in his possession in the Technical High School, there were a few pictures of a horticultural exhibition in New Orleans, taken by electric light, and that all light points of the electric lamps, visible upon the picture, appear black, while the milk-glass bells enclosing the light present a bright appearance on the picture.

The President stated that ten years ago Janssen proved that pictures of the sun, appeared reversed by overexposing. In the pictures exhibited by Dr. Zenker, this inversion appears to lie foremost. They (the pictures) are not truer for this, of course; for upon every one who has seen the appearance, they make an unnatural impression. Probably the Japanese pic-

tures are paper pictures, copied from enlarged diapositive pictures.

Dr. Hesekiel exhibited some pictures which he had produced with Himly's lead-strengthening. He was highly pleased with them.

THE GERMAN SOCIETIES MEETINGS are very attractive at present.

PACIFIC COAST PHOTOGRAPHIC ASSOCIATION.—I might add, as you are interested in all these things, that we had a most successful exhibition (annual) of the Pacific Coast Amateur Photographic Association. It received the commendation of the artist and the artistic community, who were surprised to find that by the highway of bromide enlargements photography had advanced from the table portfolio to the walls of the library or parlor. Each succeeding exhibition is better than the last, and the last is always considered good. We are ordered by policeman progress to "move on," and we move.

A. J. TREAT.

SAN FRANCISCO.

SOCIETY OF AMATEUR PHOTOGRAPHERS, NEW YORK.—At the January 10th *seance* of the members of the Society of Amateur Photographers of New York, an attempt was made to change the name of the Society to *The New York Camera Club*, but success did not follow.

NEW ORLEANS CAMERA CLUB.—Mr. Carriere took an instantaneous photograph of the meeting with Carbutt's actinic light compound, which came out as if taken in daylight.

At the conclusion of the performance at the Club's first anniversary, the members

took instantaneous views of the audience. The hall was in perfect darkness. A taper, however, was lighted and applied to the powder held over the camera, resulting in a flash, which instantly produced the picture on the lightning plates in the camera.

At the conclusion of the exhibition the audience made an inspection of the work of the members, which was pronounced by all hands to be of a very superior order.

That artistic amateur, P. E. Carriere, of the Club, has succeeded in producing two excellent pictures of the recent balloon ascension. In one he caught the balloon in mid-air, and in the other the aeronaut is seen descending in his parachute. Mr. Carriere is rapidly advancing in his art, and promises to become one of the leading amateurs of the country.

THE "FOCUSES" CLUB.—As Secretary of the "Focuses," I beg to announce the organization of the same, in the interests of photography. We have at present seventeen active members, with the following officers:

*President*.—Frank Chamberlain.

*Vice-President*.—J. Milton Dyer.

*Secretary*.—Fred. R. Fuller.

*Treasurer*.—Ed. M. Williams.

We have meetings every second and fourth Thursdays in the month, and they are full of interest and information. Several of our members are experienced photographers, and lectures are delivered to the Club by them. On the whole, so far, the organization is a perfect success, and great results are expected.

F. R. FULLER,  
Secretary.

CLEVELAND, OHIO.

## Editor's Table.

SARA BERNHARDT stood the fire of six Parisian cameras all at once, during nearly a whole afternoon recently. She was dressed in her new character of "La Tosca." Mons. Paul Nadar, son, and staff generalized the cameras.

THE Photogravure Co., 853 Broadway, New York, has issued a very picturesque catalogue

of splendid art works. The portrait, by Sarony, of Miss Ada Rehan as "Peggy," is the frontispiece, printed by the Edwards Photogravure process. The whole thing is rich and fine.

*Notes from the Photochemical Experiment Laboratory in Vienna*, is the title of a leaflet sent

us by Drs. F. MALLMANN and CH. SCOLIK, on the Sensitive Orthochromatic Collodion Process. The collodion emulsion is formed by dissolving three-fifths grain bromide of ammonium in just barely necessary amount of water, to which are added 40 c.cm. hot alcohol, and then 40 c.cm. four per cent. raw collodion. The solution, even during the emulsionizing, should stand in hot water. This is solution A.

Solution B is formed by dissolving five grains silver nitrate in 6.7 c.cm. water, to which are added 50 c.cm. of hot alcohol; then alcoholic ammonia (absolute alcohol saturated with ammonia gas) is added until the precipitate formed in the beginning is again dissolved.

A and B are then mixed (A being put into B) and well shaken. The result is an emulsion of finest grain.

The pyro ammonium-carbonate developer is used.

Carbonate Ammon. (united) .	20 c.cm.
Pyro solution (Alcohol 1:10)	2.3 "
Bromide of kalium (1:10) .	1.6 drops.

From 3 to 5 drops bromide of kalium solution will suffice to produce a brilliant and clear negative.

"MAGNIFICENT" is the only word we can apply to the full-sheet portraits sent us by Mr. JAMES LANDY, of Cincinnati, of Messrs. Edwin Booth, Lawrence Barrett, and Miss Minnie Gale in the character of "Desdemona." Technically the pictures are perfect. As a work of art the picture of Miss Gale is studied, posed with great care, and attention is given to every detail of arrangement, light and shade. Mr. Landy evidently tried his best. The portrait of Mr. Booth is a master-piece and gives us, in the view chosen and in the expression, all we could desire in the likeness of the greatest living actor. The picture of Mr. Barrett is not quite so happily chosen, and yet it is a fine interpretation of his character. The trio adds much value to our collection.

OLD EDITIONS OF *Mosaics*.—We have been buying up some over-stocks of *Mosaics* from the dealers, and if the number of would-be purchasers whom we had to deny will apply again we may be able to fill up their sets of back numbers. Send a list of what you want and we will mark it and return. Come soon.

*Photographics and Quarter Century* were of great assistance to me in planning and erecting my new studio. A. M. LORD, Bank, Tenn.

THE new catalogue of the A. M. Collins Manufacturing Co., Philadelphia, is now ready. Not only does it give a complete price-list of the plain and fancy cards manufactured for the photographer, but for his guide and protection *fac-similes* of the trade-mark labels used upon the packages are given. This last is a capital idea and prevents the buyer from being deceived with spurious and inferior goods. The new catalogue is a model of neatness and care.

EDER'S JAHRBUCH FOR 1888.—Dr. Jos. Maria Eder, of Vienna, has favored us with a copy of his excellent year-book for 1888. The able editor has exceeded himself this year. Besides a calendar, tables, and recipes in abundance, a fine series of articles similar to those in *Mosaics* is given, treating on every useful topic. The frontispiece is an admirable photogravure of our genial old friend J. B. Obernetter, and the other illustrations are zinc etchings, leintypes, Meisenbach's, stipples, gelatine prints, and phototypes. It is the most splendid compendium we have seen come from Germany.

THE Deutscher Photographen-kalender for 1888 (seventh year), edited by Mr. K. SCHWIER, Weimar, Germany, is less pretentious than that of our Vienna contemporary, and yet it is very complete and compact and full of good. Two capital *genre* studies are in the front. It is meant for local use principally.

PLUCK PAYS AND WE LIKE IT.—Here is a good example, worthy of following:

After January 1, 1888, I shall be obliged to require in all cases, cash when the negative is made. Pictures must not be considered ordered until paid for, for the following reasons:

First. This is the custom in leading galleries everywhere.

Second. The business has become so extensive as to be unmanageable under the credit system.

Third. Accounts are always small and scattered and troublesome to collect.

Fourth. "When will these pictures be ready?" "Next Saturday." "All right; I'll call and pay you for them when I get them." But he or she does not come back. I lose more in a year this way than in any other. People have no idea how often I am imposed upon in this manner.

Fifth. My own reputation for truth and veracity ought to be well established by this time. Persons who are afraid to trust me will go elsewhere for their work.

I shall guard my reputation jealously and

spare no pains to obtain the very best results, and will guarantee good work in all cases. To my wealthier patrons, and especially to my personal friends I would say, please do not ask me to break this rule, as I cannot do that and be honest with others.

CHARLES BUTTERWORTH,  
Wilmington, Ohio.

RAILROAD views in abundance for our present purpose have been received. Some fine views of the Mississippi bridge at Minneapolis, Minn., have come to us without name. The kind sender will please accept our praise and thanks.

We still need some snow-plow views—the plows in action, the snow flying!

*The City of Louisville and a Glimpse of Kentucky* is the title of a very fine work of quarto-size, larger than the fashionable trade catalogues. It is fully illustrated by fine views and well managed portraits, mostly the work of Mr. J. HENRY DOERR, photographer of that city. It is a creditable production in every way.

MESSRS. HERLOCKER & SCHAAD, Freeport, Ill., have favored us with their 1888 "Mosaics and Souvenir," consisting of a pretty calendar and a 4 x 5 Mosaic print copied from a nicely arranged collection of their best work, all of which is very creditable.

Our souvenir will be supplied to the balance of our subscribers during the present month. We thought we had printed enough, but we did not expect such a large increase of subscribers as has already followed the souvenir distribution to crown our year twenty-five.

HONEST WITH HIMSELF.—Who can be more so than the writer of this:

NORTH ADAMS, MICH., Jan. 15, 1888.

MR. E. L. WILSON.

I find so much to learn, to encourage me, that I wonder I was ever so foolish as to think it economy to do without the friendly visits of your journal. My visit to the Chicago Convention renewed my love for the work, and I resolved to invest at least \$20.00 for reading and study, for the coming year, and I believe it will pay me a hundredfold. If I could, I would say to every photographer who does not have the PHILADELPHIA PHOTOGRAPHER, get it at once; you can't afford to economize. In the language of the good book, I would say friend Wilson, "Forgive them for they know not what they (lose) do."

A. J. WHALEN.

A CORRECTION.—By some oversight, some of the statements made by our good friend Mr. E. K. HOUGH concerning his art education were omitted in his article on Burnet's *Essays*, to which we gave the place of honor in our last number. Mr. Hough had a very extended experience in various art-schools, and one of his tutors was Prof. Chas. A. Seeley, long the editor of the *American Journal of Photography*, published in this city. His books, too, were always Mr. Hough's companions.

RESOLUTIONS OF CONDOLENCE.—At a meeting of the photographers of Quincy, Ill., the following resolutions were unanimously adopted:

Whereas, Our Heavenly Father has seen best to take from us and transplant in the land of purer light and brighter skies our esteemed co-worker, Mr. A. M. Warner:

Therefore, Resolved, That in him we have lost an earnest co-worker, kind friend, genial companion, and an *honest man*;

Resolved, That we extend to his bereaved family our kind sympathy;

Resolved, That as a mark of respect we attend the funeral services in a body;

Resolved, That a copy of these resolutions be published in the city papers.

A CALIFORNIA chance to purchase a fine studio is offered by Mr. J. PITCHER SPOONER, Stockton, Cal.

WE DO NOT KNOW.—And when we do not know, we never fear to say—Frequently we have letters from our subscribers inquiring as to the business standing of obscure "dealers in photographic requirements." Why consider them at all? All the reputable and enterprising dealers advertise in our magazine in abundance. We know nothing about the ones left out. Use the best.

FREE.—We do send sample copies of our magazine free to all who can satisfy us that they are users of cameras. Our offer is meant for such only. And Martin Gunderson, of Ringville, Minn., and all others who write for sample copies frequently, may as well know that their requests will not have attention. If one sample copy don't go around we must do without the Gunderson family patronage.

The P. A. of A. Convention will be held in the Minneapolis Industrial Exposition Building, July 10 to 14, 1888.

MR. SAM C. PARTRIDGE, 529 Commercial st., San Francisco, Cal., has a fine importation of hypo for sale.

PICTURES RECEIVED.—Messrs. LEWIS BROS., Great Bend, Kan., have favored us with a number of cabinets showing the great progress they have made in their work. Their subjects are carefully posed and well lighted. One of Willis Blackwell (a colored gentleman) taken on his 112th birthday is remarkably good.

MR. W. RICHARDSON, East Hampton, Mass., advertises a new "Glacé Lubricator" which will prove a boon to those who would shine. Some pictures he sends us prove that his claims are well founded. Read them, as detailed in his advertisement.

RAILROAD pictures have come to us from Messrs. H. H. LANGILL, Hanover, N. H.; O. B. BROWN, Osceola, Neb.; W. R. CASSELMAN and others, which show the horrors of railway accidents to a degree. We now have enough such pictures for our present purpose.

MARK TWAIN'S KITTENS.—As solemn a looking quartette of kittens as we ever saw come to us from Mr. E. M. VAN AKEN, Elmira, N. Y. The photography is excellent, but the poor little things have evidently been dieted on stray leaves of "Innocence Abroad" and waste scraps of the "Golden Age" until their spirit is all gone out of them. When Mr. Van Aken made his second effort at them they had fallen asleep on a willow chair. Strange to say the chair does not show through them. We suppose that life to them should be one "grand important joke," but they do not so expression it, poor kittens!

No. 5 photographic bargain list, from Messrs. W. H. WALMSLEY & Co., 1016 Chestnut street, Philadelphia, presents some wonderful attractions. It contains a large variety of cameras, lenses, and materials, and should be consulted by all. Thirty particular photo outfits are offered and one enlarging and one Marcy Sciopfiction outfit. Lenses, tripods, holders, and washing apparatus follow.

*Practical Amateur Photography*, by C. C. VEYERS, Horsforth, Leeds, England, third thousand revised to date (price, six pence) is just received. We have before spoken of the practical completeness of this little work, and are glad to know that 2000 more copies are demanded from

our well-known correspondent the author. We shall import a supply for our readers and announce them when they come.

1881 COPIES of this magazine are wanted by one of our subscribers, for January, February, March, and August, to make up his file. We will give twelve numbers of our current volume for them on receipt.

LONG'S *Art of Making Portraits in Crayon on Solar Enlargements* has been rewritten and enlarged, and is now most complete in every detail—the work of practical artist and photographer combined. It is a marvel of cheapness, too. We mail it to any address for fifty cents.

LEADVILLE, Colorado, papers are congratulating the citizens upon having among them a very talented photographer in the person of Mr. A. BRISBOIS. Seven years of earnest work has brought honor, fame, and funds to our prosperous subscriber.

WIDE-AWAKE; Pansy; Little Men and Women, and Baby-land should be in every photo reception room. They are published by D. LOTHROP & Co., Boston. Try our advice.

*Quarter Century*; send ten more copies—and two of *Photographics*. SAM C. PARTRIDGE, San Francisco, January 12th.

*Anthony's Bulletin* for 1887 (Vol. XVIII.) has been sent us, bound in library style, by the publishers. It is an acceptable gift and yet we regret that it has been clipped of the advertisements. We often have to refer to them and think advertisers are entitled to have them bound in with the volume.

THE *Photographic Times* for 1887 has also been sent for our office use, neatly bound. It is the most attractive volume ever issued by the *Times*. It is easier to handle without advertisements, and yet, for the reasons given, we etc.

A QUICK picture of a dog leaping over a stick has been sent us by Mr. W. D. H. WILSON, 910 Arch st., Philadelphia. The dog is clear of the ground, and is putting all the jump into his work possible, for even the marvellous Marcellus shutter (with which he was caught) to do. It is excellent.

At the meeting of the New York Academy of Sciences on January 16th, Mr. W. GOULD LEVI-

son read a very interesting paper "On a Method for the Absolute Measurement of the Shutter-speed in Instantaneous Photographic Exposures (with numerous lantern illustrations). We have arranged for the publication of the paper in our magazine as soon as we can complete the engravings.

A FEW ONLY OF THIS KIND.—The son of one of our old subscribers (one who long read our magazine) writes as follows: "Father died recently and we have an artist in his place who says he don't want any journal, so please discontinue yours." We expect to see our old friend's business go down and the "artist" with it.

GOOD ENGRAVING.—If those who are interested in good engraving will examine the illustrated cards which head our new advertisements of *Quarter Century* and *Burnet's Essays*, they will see some nice work from the skilful hands of Mr. G. H. HERRICK, Fitchburg, Mass. Mr. Herrick is an enthusiastic photographer as well as a good designer and engraver.

OBITUARY.—We have much sorrow in reporting the death of our old German friend Herr MAX PETSCH (of Loescher & Petsch), Berlin, Germany. In some respects he stood alone in our art. His chief forte was genre work. He made some of the most admirable pictures of children we ever saw. A large number of them were reduced and formed our embellishment about fifteen years ago, and the "Berlin Studies" which were bought so extensively in this country were made by him. We mourn his loss—and at such an early age.

Dr. Vogel gives the following details in the *Mittheilungen*:

"We report with sorrow, that just before going to press, we received notification of the death of the painter, Max Petsch, of Karlsruhe. He was an honorary member and one of the founders of the society for the Advancement of Photography, and former partner of the firm of Loescher & Petsch. His death was sudden and followed very soon upon that of his wife, who died only a few weeks before. After an illness of only two days, he expired, not having reached his fiftieth year. Peace be unto him!"

THE Air-brush has been such a remarkable success that the manufacturers have felt warranted in making a material reduction in the price, as follows: In the United States \$40; with the easel \$45.

At this price the Air-brush will be sent upon trial of thirty days, under any of the following conditions:

1. When the order is sent by a party of good commercial standing.

2. When the order is accompanied by a statement from some party of good commercial standing, guaranteeing safe return of Brush, or payment for same at the end of thirty days.

In either of above cases no deposit of money will be required.

3. The Brush will be sent C. O. D., and the price held by the express agent for thirty days, subject to return of instrument by party ordering.

Send for their circular to the AIR-BRUSH MFG. Co., Rockford, Ill.

A REMARKABLE MOONLIGHT VIEW.—Mr. E. M. VAN AKEN, Elmira, N. Y., sends us a very interesting moonlight view, of which he writes thus:

"It is my first attempt in that line—made on the 27th of December, between 7 and 9 o'clock at night. Exposure one hour and ten minutes—Cramer lightning plate No. 1, Euryscope lens, about half inch stop. View of the principal part of Elmira, from the East hill, looking west."

It is well defined and wonderful.

PRACTICAL ESSAYS ON ART.—We find on our desk a handsomely bound copy of the *Practical Essays on Art* by the late John Burnet, with the compliments of Edward L. Wilson, the well-known photo-publisher, at 853 Broadway, New York. Mr. Wilson has acquired a well-known reputation as continuous manager for twenty-four years of the popular PHILADELPHIA PHOTOGRAPHER, as well as the publisher of some of the best and most thorough photographic books of the present age. The present work before us comprises three practical essays on art, under the headings: 1. Composition; 2. Light and Shade; 3. Education of the Eye. The plates are reproduced entirely by photo-lithography by the Photogravure Co., of New York, and the descriptive and subject matter arranged and edited in a very able and comprehensive manner by Edward L. Wilson. These essays should be carefully studied by every artist and photographer, as a vast amount of valuable instruction and information is contained therein which can not be found elsewhere. The pictorial arrangement and typography are marvels of neatness and elegance. Copies of the work can be obtained of the publisher, 853 Broadway, at \$4.00 per volume.—*The Lithographer*, N. Y.

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

**MAKE OUT YOUR OWN BILL,** and remit cash with your advertisements, or they will not be inserted.

**ADT'S PATENT PRINTING FRAME.**—The printing frame of the future. Considering the construction of the Back-board, the Patent Tally, and the Elastic Felt Pad, the Adt Patent Printing Frame is the cheapest and best in the market.

### PRICES.

3½ x 4½ . . .	\$0.50	6½ x 8½ . . .	\$0.75
4 x 5 . . .	50	8 x 10 . . .	85
4½ x 5½ . . .	50	10 x 12 . . .	1.15
4½ x 6½ . . .	60	11 x 14 . . .	2.15
5 x 7 . . .	65	13 x 16 . . .	2.40
5 x 8 . . .	65	14 x 17 . . .	2.80

When made with backs to open lengthways, an additional charge of ten per cent. will be added to the foregoing prices.

Now in stock.

GEORGE MURPHY,  
2 Bond St., New York.

**FOR SALE.**—Gallery, A No. 1, doing good business, fine location, 5000 registered negatives, 8000 inhabitants. Will sell at a bargain. No postals answered. For particulars address

W. C. HUFF,  
Stevens Point, Wis.

**FOR SALE** without instruments, a good gallery in Duluth, Minn. No blowing necessary. Everything new. Ground floor and inside stairway. Northeast light. Must rest for a year.

Address "LETTER," Duluth, Minn.

**FOR SALE.**—A small gallery in a railroad town of 1800 inhabitants, no opposition: goods nearly new; invoices \$425 without including chemicals and materials.

J. W. ROSHON,  
Newville, Cumberland Co., Pa.

A **FIRST-CLASS** gallery for sale in Danville, Pa., doing the leading business, a town of 1300 inhabitants, and no opposition. Reason for selling: I have two galleries and don't want to keep it. Address

S. Y. RICHARDS,  
Towanda, Pa.

## BUY BURNET.

## THE EASTMAN FIRE.

We desire to inform our patrons that the fire in our factory, which occurred on the morning of February 10th, inst., only partially disables us. Our camera and roll-holder factory being separate from our paper works, is uninjured, and we will be able to fill all orders for these goods as heretofore. Our bromide paper works, in which building the fire occurred, is in shape for the immediate erection of new machinery. The work has already been commenced upon this, and will be pushed energetically to completion. We have new coating machines partially completed, and they will be in operation in a very short time. In the meantime we have saved quite a large stock of coated paper, which we hope will, on careful test, be found uninjured, and in some sizes we may have enough to meet the actual needs of our customers until we are able to get our new machinery in operation. Until then, we trust our customers will assist us what they can by ordering only for actual needs, and with their indulgence where we cannot fill their orders complete. They may be assured of every effort being strained for the early resumption of work.

Before the fire, plans were already prepared for a large eight-story addition to our factory, more than trebling the capacity of our works, and we were in hopes by early summer that we would have facilities for meeting the enormous increase in demand for our films and paper, the use of which is now world-wide. When this building is completed our customers will no longer be subjected to vexatious delays in filling their orders. Before the fire we had the largest and most extensive gelatino-bromide paper works in existence, and our new works will treble the old in capacity. Our customers who have followed our fortunes so far, may be assured the Eastman papers will still hold rank, not only as the most extensively used, but the most reliable manufactured in either hemisphere.

Respectfully,

THE EASTMAN DRY PLATE AND FILM Co.

Please note that our camera and roll-holder business will go on as usual.

Our enlarging department will be ready for resumption of business about March 10th.

BROWN &amp; GOLDSMITH'S

SUCCESS

**SENSITIZED PAPER PRESERVATIVE.**

A Great Boon to Photographers.

PATENT APPLIED FOR.

—SIMPLE, RELIABLE, CHEAP.—



No more anxiety in regard to the weather or in keeping your paper until the sun shines, or until it can be used. It will save the average photographer five times what it costs to use it, saying nothing of the convenience of having sensitized paper always ready for use.

It is as valuable in Winter as in Summer, and will pay for itself five times over in the saving of time, labor, and gold, as where paper is kept two or three days it tones much easier than without it, and requires less gold.

Price, \$2.00 per Package.

USE ONLY  
TIN CYLINDER CANS.

For sale by all Photographic Stockdealers.

This cut illustrates the apparatus that will do the work successfully.

GOLDSMITH &amp; MOFFITT,

Sole Manufacturers,

374 Main St., Springfield, Mass., U. S. A.

**MALLIN'S FLYING SEA GULLS.**—A beautiful 4 x 4 picture of over fifty sea gulls flying in the air and over the waves of the sea at Southport, England. Made by C. T. Mallin, Esq. A fresh invoice received. A splendid picture. Mounted 75 cents, unmounted 50 cents.

EDWARD L. WILSON,

853 Broadway, New York.

**F I Z Z-Z-Z-Z-Z-Z!**

WHAT WAS THAT?

**LIGHTNING FLASH**, for making *Negatives at Night*. Successful. Lots of Fun! Try it. Ask for *Lightning Flash*. Read the label.

**LIGHTNING FLASH**

Prepared by

**BUCHANAN, BROMLEY & CO.,  
PHILADELPHIA.**

For sale in *New York* by The Scovill Manufacturing Co., George Murphy, and The Oberg Camera Co.

Price, per box, 75 cents.

TO PHOTOGRAPHIC MERCHANTS.

NEW YORK, September 1, 1887.

GENTLEMEN: We have now opened a *New York Depot* for the benefit of our Eastern patrons. From this depot orders will be delivered to any New York Freight, Express, or Steamboat office. Address M. A. SEED DRY PLATE Co., No. 2 Bond St., New York. A. R. HUISKAMP, Manager.

TO PHOTOGRAPHERS.

We have this day shipped to our warerooms 819 Arch Street, Philadelphia, 208 State Street, Chicago, an invoice of

THE HUB BRAND DRY PLATES

to meet immediate demands. More shall follow daily. Remember that we shall deal liberally with all photographers who are willing to convince themselves of the quality of these plates. They have our guarantee. THE BLAIR CAMERA Co., Boston.

THE PLATINOTYPE for Photographers, Solar Printers, and all Copyists. Platinotypes are permanent, and a license to work the process costs very little. Send ten cents for sample portrait and book of instructions.

WILLIS &amp; CLEMENTS,

1112 Hunter St., Philadelphia, Pa.

It is a pleasure to know that all of the best photographers in the city of PHILADELPHIA are using Three Kings Albumen Paper. Price per dozen, 90 cents; per ream, \$32.00; second choice, per ream, 24.00.

BUCHANAN, BROMLEY & Co., Importers,  
Philadelphia.

THE PLATINOTYPE for Amateurs; simple to work, and the results artistic and beautiful. Send ten cents for sample landscape and book of instructions.

WILLIS &amp; CLEMENTS,

1112 Hunter St., Philadelphia.

LEFT-HAND AIR-BRUSH AND EASEL FOR SALE. —This is a rare opportunity for a left-handed artist, as this style can only be had by special order, and made by hand at an extra expense of fifteen dollars. This instrument has been but little used and has just been put in first-class order by the New York agent of the Air-brush Co. For reduced price apply to

RICHARD H. MORAN,

245 Center st., New York.

Get Wilson's "Quarter Century in Photography," \$4.00.

ART OF MAKING PORTRAITS IN CRAYON  
ON SOLAR ENLARGEMENTS.

SECOND EDITION.—NOW READY.

The *Photo Times* says: "The second edition, rewritten and enlarged, of this popular handbook for crayon artists, has recently been issued. The first edition of this book being small and published rather as an experiment, many important points on the subject had to be treated briefly. But that edition meeting with such a warm reception and selling so rapidly, the author resolved to enlarge the second edition and give his readers the benefit of the knowledge which he had since gained of new materials and a fuller description of his methods of handling them. The little work treats solely of bust and vignette portraits, and its aim is to assist young artists who are struggling alone beyond the reach of competent teachers. After an introductory confidential chat with the students, we have chapters on the Solar Print, Crayon Materials and How to Prepare them; the Crayon Print, Interlining and Retouching; Hair and Beard; Drapery; Background; and Concluding Remarks."

Price, in paper cover, fifty cents.

For sale by EDWARD L. WILSON,  
853 Broadway, New York.

M. H. ALBEE, scenic artist, studio No. 4, Central st., Marlboro, Mass. Send for samples and prices of backgrounds.

GRAY'S PERISCOPE.—This new photographic lens is being very favorably received both in this and the European markets. The *Periscope* is a rectilinear combination, and is most useful for views and architectural subjects that require microscopic definition over a largely extended field. Owing to its simplified construction, the *Periscope* is sold for less than half the price of any other lens doing the same quality of work. Send for list.

Nos. 1, 2, and 3 screw into the same flange, and can be had in matched pairs for stereoscopic work. Nos. 4 and 5 screw into the same flange. R. D. GRAY, 259 West 27th St., New York.

A THIRTY-INCH Entekin Burnisher for sale low. Will burnish a full sheet print as well as a cabinet. Call and see it, or address ROBERTS & FELLOWS, 1125 Chestnut St., Philadelphia.

## FOR SALE.

1 NEW 11x14 VIEW CAMERA, all modern improvements, with BARNETT HOLDERS.  
50 8x10 Printing Frames.

1 Mammoth Bath Holder.

1000 8x10 Negatives, 2 cents each.

3000 5x8 Negatives, 1 cent each.

PACH BROS.,

841 Broadway,  
New York City.

## BUY BURNET.

## — EUREKA! —

(BARGAIN LIST.)

1 25 inch Entekin Burnisher . . .	\$45.00
3 Bergner Stereo Cutters, each . . .	15.00
1 Darlot $\frac{1}{2}$ size Portrait Lens, Rack, and Pinion Central Stops . . .	14.00
1 $\frac{1}{2}$ size Lantern Objective, no name, good condition . . .	5.00
1 No. 2 Euryscope Lens . . .	40.00
1 Pair (matched) No. 0 Euryscope Stereo Lenses . . .	40.00
1 Matched Pair Ross Long Angle Doublets . . .	50.00
1 18 x 24 Common-sense Tray, good as new . . .	3.75
1 Marion Hard Rubber Adaptable Drop Shutter, cost \$10.00 . . .	5.00
1 No. 2 Darlot Rapid Hemispherical . . .	20.00
1 E. A. Single Combination Lens, Rack and Pinion Movement . . .	5.50
1 Ross $\frac{1}{2}$ size Portrait Lens, Rack and Pinion, Central Stops . . .	30.00
1 Spencer Head Rest, Nickel-plated Rods . . .	7.00

The above bargains are offered for sale for cash and are all guaranteed to be in good working condition or no sale. ROBERTS & FELLOWS, 1125 Chestnut St., Philadelphia, Pa.

A RETOUCHER of long experience is prepared to work for the trade. Apply at 36 Bromfield St., room 40, over Codman's, Boston, Mass.

## BUY BURNET.

## SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

As printer, state terms, five years experience. F. H. Cady, 29 L st., S. Boston Mass.

By a first class artist and retoucher. Frank Jantson, 269 King st., Charleston, S. C.

By a young lady as retoucher and assistant. H. D. O., Box 783, Middleton, New York.

As operator and retoucher, by March 1st. W. L. Jacobs, Blair, Washington Co., Neb.

In New York city or vicinity, by a photographer working many branches, including photo mechanical print. O. O. Litzko, 247 Stockton st., Brooklyn, N. Y.

With some good photo stockhouse. Traveling preferred. Seven years experience. For further particulars address Roberts & Fellows, 1125 Chestnut st., Philadelphia, Pa.

By a lady as retoucher, can assist in printing. L. C., Box 285, Canton, St. Lawrence Co., N. Y.

By a young man, twenty-one, first-class printer and toner, can assist at operating, best of reference. A. Brown, 113 Jay st., Brooklyn, N. Y.

By a first-class operator and retoucher, also working up in crayon and India ink, of over twenty years practical experience, speaking several languages. Address Baecker, 151 Indiana st., East, Chicago, Ill.

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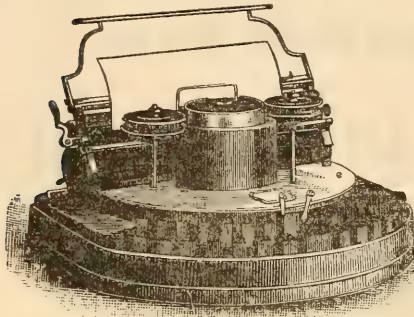
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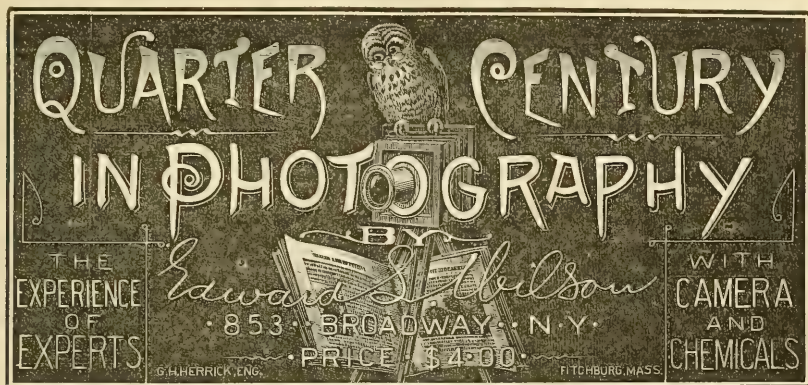
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PHILADELPHIA  
Photographer.

AN ILLUSTRATED SEMI-MONTHLY JOURNAL,  
DEVOTED TO PHOTOGRAPHY.

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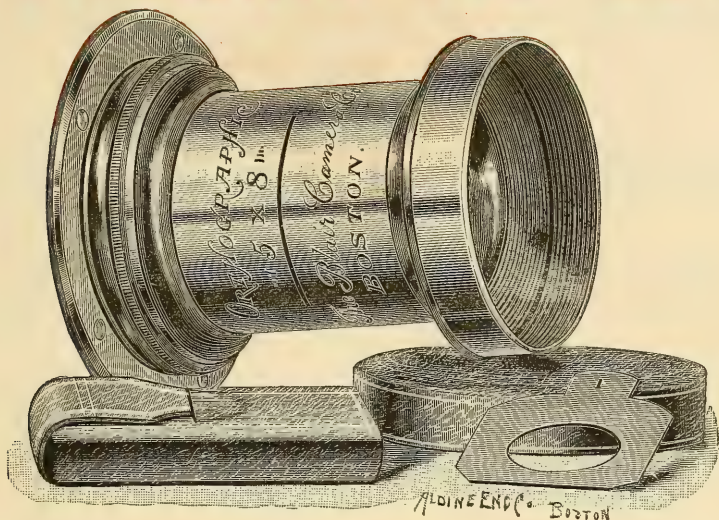
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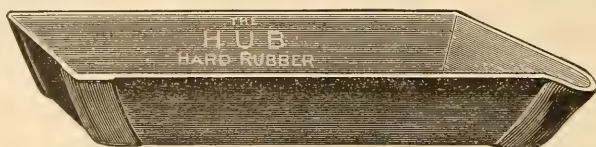
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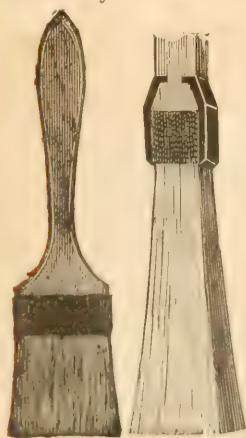
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see to it that no one draws a focus on it, and runs away, like the party did with my 5 B No. find it just takes the dilapidated linen from off the shrubbery. I am delighted with it, and will etc., I always feel confident of success, and since I received the 6 B some ten days ago, I do without it. When I get calls to go quite a distance from home to make large groups, views, DEAR SIRS: After three years' experience with the Suter Lens, I don't know what I would

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(Signed)

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within the last month, using it entirely for outdoor work. I shall continue its use under my light, I have had the lens for nearly two years, but never exposed it on a head in my gallery until welcome to it, and this statement with it.

sharp from the end of the chin to the back hair over the ear. If it is of any use to you, you are 16 stop, in five seconds (poor light at that). You will see that it is *microscopically* be only what you see daily, viz., a 7½ inch head, made with a No. 5 B Suter Lens, with the No. GENTLEMEN: I send you by to-day's mail a curiosity, that is, it is such to me, to you it may

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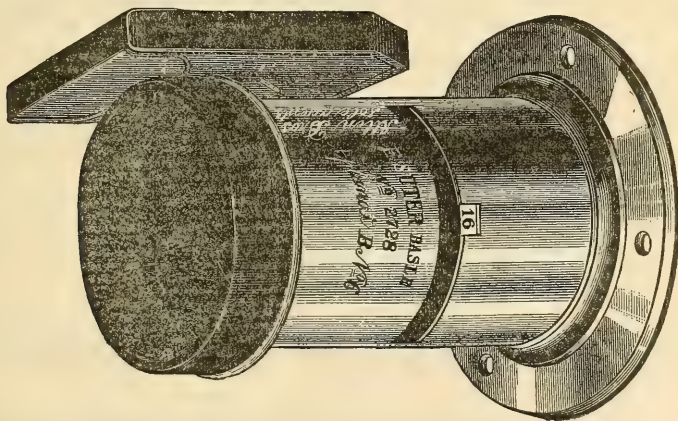
the No. 6 B and return you the No. 4 A by to-day's express.

DEAR SIRS: The No. 6 B and 4 A Suter Lenses you sent me have been carefully tested alongside of a No. 6 ———. The latter lens does no such work as either of the Suters. I keep

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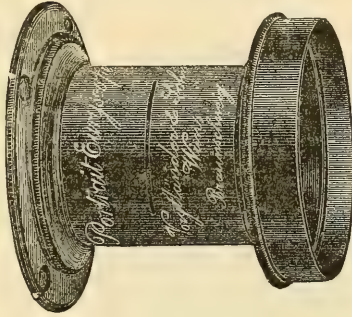
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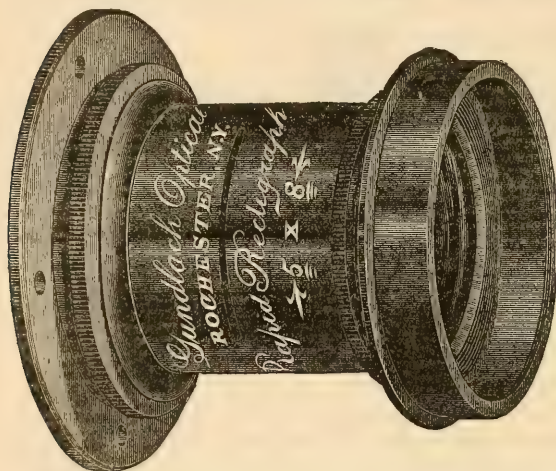
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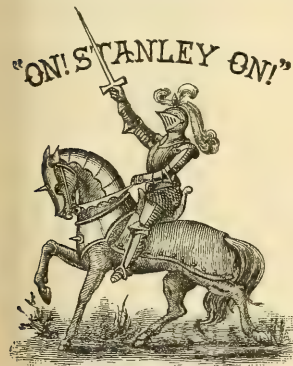
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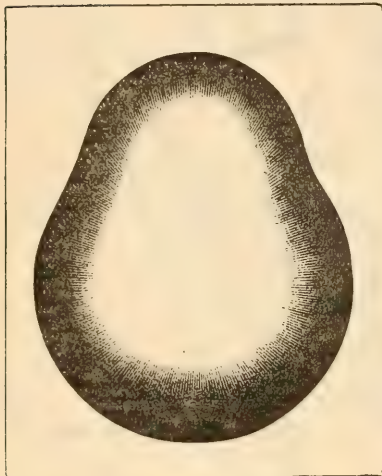
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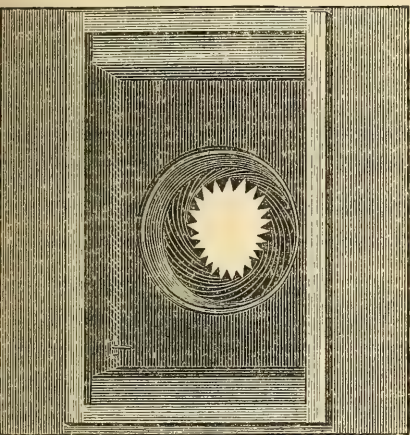
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NOTE BY THE PUBLISHER.

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THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXV.

MARCH 3, 1888.

No. 317.

## ANOTHER PROTEST.

BY W. J. BAKER.

ONE of the most cheering signs for the future of photography is the number of protests that are being made by writers—themselves photographers—against the prevailing method of illuminating and managing sitters.

The writer was one of the first to raise a warning voice in this matter, feeling that he had both a right, and a duty to perform.

In the spring of 1869, I illustrated THE PHILADELPHIA PHOTOGRAPHER with the first published—so-called—Rembrandt photographs and also described the method by which the effect was obtained.

The result was as startling as unexpected. "Rembrandts" in their variations became at once the rage, and, after almost a score of years, they are the rule, and broad lighting is the exception, in photographs.

It is a triumph of vice; a case of the persistence of the unfitted; a measure of the ignorance of the public, and of photographers also, as to what constitutes good art, and particularly good portraiture.

The mischief is in the abuse, not in the use of the effect.

As the old giant Procrustes fitted all men to *his* bed, chopping them off if too long, stretching them out with ropes if too short, so do pseudo artists thrust all sitters into the Rembrandt light. Some of them display care and skill worthy of a better method.

The essential feature of the "Rembrandt" consists in placing the sitter, more or less,

between the source of light and the camera—*i. e.*, the sitter is nearer the light than the lens is.

The effects are, for the most part, bizarre, incoherent, offensive to good taste, and most injudiciously used.

The main difficulty is, that those parts of the head, which are the furthest from the eye, receive the strongest light, and the deep shadows fall upon the points nearest the eye. Thus inverts—or ignores—one of the strongest resources of pictorial art, whereby those points that receive the most illumination normally seem the nearest, and the shadows retire. On the contrary, in the Rembrandt it is unavoidable that the shadows be made to appear to advance and the lights to retire. Further, the necessary softening of the shadows by reflectors, and white powder, produce cross lights and false lights, in inextricable confusion.

The values are falsified, features distorted. Unity and proportion in the system of lights are lost. The truth, and strength, of portraiture are gone.

These are strong charges; I would not bring them in the face of popular custom and admiration, were I not deeply convinced of their verity. Argument I know to be useless. It is, and must be made, a matter of *perception*.

To those who admire these crudities, the subject of this animadversion, I can only say, "Once I admired these follies too," but believe that continued study "has set me free," and placed me in the path trod by artists for centuries.

To the cry of old foggism, I say, Yes! I am conservative, to the extent of wishing to know, practise, and preserve all that the centuries have brought us. Human progress is a growth. Each moment has the impulse of all that has gone before. Slowly the judgment of the ages has assorted men's works.

"The stone that the builders reject, often becomes the chief stone of the corner."

That you admire the things that I admired a decade ago, but now condemn, is hardly *prima facie* evidence of your advance.

To those that are conducting their galleries for popularity, while conceding that the public standard has risen, I say, you have business, but you do not, cannot, have art, thus.

I, for one, cannot suppose that the more earnestly, and the longer a man studies a subject, the less he can know about it. Yet such a Machiavelian theory is often implied in the criticisms on artists by those who have never given an hour's serious study to art. Hence the transient triumphs of conceit, ignorance, and assurance. They have their day, but the signs are that their day is passing, and that photography will, bye and bye, be placed, according to its limits, on a basis of sure art.

### NOTES FROM LONDON.

BY T. C. HEPWORTH, F.C.S.

EVER since Dr. Piffard published his paper on taking portraits at night by means of a flash light, the amateurs over here seem to have become mad upon the subject. And this need not be wondered at for some really excellent work is turned out by the method. Indeed, it is not too much to say, that the professional photographer has now reason to look upon amateurs as rivals in his business. Hitherto the possession of a studio gave him facilities in the way of lighting which left most amateurs far behind; but now, when a pinch of magnesium and a tuft of gun cotton simulate sunshine, and a few screens can regulate its intensity, the amateur is independent of a glass-room, and can produce fine work. But where the skilled amateur has the chief advantage is in the

circumstance that he and his subjects are at home and surrounded by the things at home. His pictures will not hint at the presence of a studio. There will be no impossible pillars, cut off at the waist (if a pillar has a waist), at a convenient height for ten elbows to rest upon; no impossible carvings, or rustic stiles; no ghastly looped curtains with tassels as big as one's head. These will be replaced by real articles, which, as every one knows, have no likeness whatever to the artificialities which I have mentioned. An armchair, with a Japanese screen for a background, and a vase of flowers on a side-table, will constitute all that is wanted, with the exception of a sitter, which may be pater familias reading his newspaper. Then the camera can be taken upstairs to the night nursery, and the little ones can be taken in their nightdresses as they scramble into their cots, and we all know that little ones look their best under such circumstances. The dinner-table, supper-table, work-table, and all other habits, customs, and pursuits of the home, can now be photographed with little difficulty, and the work is being constantly done too. Those who are not in the secret want to know the meaning of these flashes of lighting, which, contrary to most well-regulated storms, come from within instead of from without.

Various lamps are being brought forward for burning the magnesium dust in the most efficient manner, but they are all much the same in theory, and do not differ much from a flash signalling light which was produced years ago by Captain Colomb, of the English Navy. This lamp, or lantern, contained a spirit jet, and a reservoir full of a mixture of resin, lycopodium, and magnesium powder, which could be urged into the flame through three little jets. This was brought about by blowing with the breath through an India rubber tube which extended for some feet outside the lantern, a long blow making a long flash, and a mere puff a short flash. In this way were the requirements of the Morse alphabet fully met.

There are abundant signs that the neglected stereoscope will again come into fashion, for many amateurs are producing pictures for use therein. Why that most beautiful method of viewing a picture

should have sunk into oblivion, it is impossible to say. We can only imagine that there is a fashion in such things, as in dress, and the invisible deity must be worshipped, even by photographers. One of the most perfect stereoscopic pictures which I have ever seen is by our worthy editor—a view from the top of the great pyramid, with two figures sitting on the rough stones in the foreground. The picture does not look attractive until placed in the stereoscope, when the effect is simply marvellous. The figures are endowed with rotundity if not with life, and the sandy plain below seems to be hundreds of feet down as it is.

The marvel-loving folk who are so plentiful, and who used to credit electricity with impossible achievements, and believe that it was a kind of magical force working under no laws, have, I think, transferred their attention to photography. At least so I judge from the letters I receive, and the questions I am asked. Only the other day I was consulted by a well-known jeweller, while I happened to call at his business premises upon another errand. He took me up into a kind of gallery which overlooked the handsomely furnished drawing-room like shop. Assistants were here and there showing customers trays full of diamonds, pearls, and all other vanities. "Now," said my guide, "I want an apparatus to photograph this scene instantaneously. You see that woman handling those diamond rings just below us. She may be a duchess, or possibly she may be a thief, as we may find out directly she is gone. But I want to secure her picture as a precaution." I was obliged to tell my friend that the light was not good enough, and that even with the quickest plates a picture could not be secured under twenty minutes exposure. I then suggested the flash light to him, but he shrewdly shook his head, as he said, "No, I want to secure my thief, but I must not frighten away my duchess."

Several photographic exhibitions are on the point of opening their doors. The two most important of these are those which are to be held at Liverpool and the Crystal Palace (Sydenham) respectively. A point in connection with these exhibitions has lately been raised, and I think that it is one

which needs and deserves attention. Should an exhibitor, who has taken a prize for a picture at one exhibition, send it all over the country, and take prizes for the same work? My own feeling is that the winner should be content with his first honors. In other words, that pictures which have already taken prizes should be ineligible for future competition. What is the American practice with regard to this point?

### FACTS AND FANCIES.

OUR correspondence and exchanges with earnest workers is unusually rich and enjoyable at present. There seems to be a bond between us, which the privileges of our art creates, that is more than ordinarily pleasant. Some of the things said to us are so profitable, too, that we would fain share them with our readers. The first is a caution from the well-known and skilful New York Society amateur, Dr. J. H. Janeway, U. S. A., now stationed at Benicia Arsenal, California.

**A CAUTION.**—I would like to give your readers a caution which, if heeded, will save them much time, annoyance, and also money. It is as follows:

As the time for the use of orthochromatic plates for landscape work—and I know of no plates that give such beautiful results as these—is rapidly approaching, and the amateur is counting the days that must elapse before he can have his first outing, he will, if he is wise, either prepare his own orthochromatics or purchase them from his dealer, for that first outing. He will be told, or he already knows, that these plates are very sensitive to some of the rays of light—harmless with other plates—and that he must shade them as much as possible from these rays either in bathing, putting them in the holder, or in developing them, or he will be confronted with a fog like unto Egyptian darkness. Now there is another foe to these plates, and here the caution comes in, and that is the fumes of turpentine, and a very minute quantity of them, as I found out to my sorrow, will fog beyond all redemption. I bathed eighteen,  $6\frac{1}{2} \times 8\frac{1}{2}$ , one night, and put twelve in one negative box made nearly four months before, and

the remainder in an old box. Those in the old box gave good results without a symptom of a fog. The twelve in the new box were totally useless. This box had been varnished when made and kept open up to within a week of using, and then, by accident, closed. A very faint odor of turpentine was detected when the plates were taken out to expose, two days after bathing them. By experiment, two or three drops of turpentine were dropped on the floor and a plate taken from a box of good plates in the dark and put in a holder and exposed. It showed fog on development. So the caution is not to have turpentine anywhere about the dark-room when handling orthochromatic plates, or use boxes that have been varnished within—well, I cannot give the time—better not be varnished at all, or even painted.

**CORRECTED AGAIN.**—The following comes from a gentleman who is known personally to many of us, and we present ourselves corrected:

After a hard day's work, I seated myself this evening for a comfortable refreshment in the way of the PHOTOGRAPHER for the 21st, which reached me this morning. As usual, I found it full of good things; in fact, I generally find that every page in it is worth the reading, and often much more than that, which cannot be said of every publication issued from the teeming press. But I must take exception to your announcement that W. H. Walmsley will soon write on "micro-photography." Now the fact is, that W. H. W. never made a micro-photograph in his life, and never expects to do so; in fact, he knows nothing whatever of the process, therefore could not instruct anyone else therein. But I do work a little occasionally at *photo-micrography*, have some little skill therein, and believe I could give some valuable hints to others interested in the same subject, which I shall be pleased to do through the medium of your journal.

Finally, turn to the appendix to the last edition of Worcester's dictionary and read as follows:

"*Micro-photograph.* A photograph of

proportions so minute that it requires to be examined by the microscope."

"*Photo-micrograph.* An enlarged representation of a microscopic object, produced by throwing its image through a suitable combination of lenses, as of a microscope, on a sensitized plate."

The Imperial dictionary of England gives substantially the same definitions. May we not consider the question as settled, and write as well as speak correctly on the subject in the future?

Yours, truly,

W. H. WALMSLEY.

PHILADELPHIA.

We promise something very thorough and useful from Mr. Walmsley, who has no superior as a—photo-micrographer.

**A GOOD IDEA.**—The New York *Tribune* says: "It is understood that the 'Prize Fund' exhibitions are to be continued, and the next will be opened at the American Art Galleries in April. Certain awards at these exhibitions have been justly criticised, but of course the results of any system of prize-giving will occasion more or less dissatisfaction. If the amateurs who have chosen the 'prize pictures' at the Fund exhibition have made some preposterous selections, it must be said that they have done no worse than the artists who have sometimes bestowed medals apparently as tokens of friendship. The usefulness of prize-giving is not yet established. A year or two since an artist suggested that all questions of prizes be abandoned at these exhibitions, and that the promoters should simply guarantee a certain amount of sales. This could be done in various ways. The 'Fund' could be kept up, and the subscribers could buy as many or as few pictures as they chose, presenting them afterward to museums, but avoiding the 'prize idea' and making it understood that the pictures were selected on account of their value to museums. One reasonable way to accomplish this would be for the subscribers to place the matter of selection entirely in the hands of the directors of the museum which might be entitled to representation. These gentlemen could make the best choice of their own institutions, and it would be

understood that this was the aim of the exhibition rather than the bestowal of special honors. If this suggestion was adopted the name 'Museum Fund' or 'Museum Purchase Fund' would be more appropriate than 'Prize Fund.' If the museum directors found themselves unable to expend the amount of the fund satisfactorily, any balance could lie over and increase the fund for the next year. If a 'Purchase Fund' is established at the Academy, the annual use of the full income should not be made obligatory, but it should be left to the discretion of the trustees."

Why would not the system of purchasing and exhibiting pictures be better for the P. A. of A. than the unsatisfactory and disturbing medal policy?

A HINT FOR THE PRIZE COMPETITORS.—The French scene painters, the *Saturday Review* says, understand much better than our own that the scenery should be the background to the pictures made by the players. Therefore, it should never be cold in tone or very distinct in detail. If the background of a scene is painted too distinctly, it is brought too close to the spectator, and the effect of distance and size is lost. This is the chief defect of the Lyceum scenery. It is too realistic, and the background too distinct. Some time ago, in "Round the World in Eighty Days," we saw the exterior of an Indian temple in the ballet scene. It was perfectly correct in style and detail, but being painted in the lightest possible key and in the most delicate colors, it appeared to stretch out in limitless size and magnificence. Accuracy is admirable and absolutely necessary, but let it be toned and kept within bounds. A great authority, M. Regnier, says: "Let our artists bear this rule in mind—paint your immediate foregrounds as minutely as you please, but let the backgrounds of all large subjects be vapory and slightly indistinct."

FROM Sagua le Grande, Cuba, some good facts come as follows:

A few weeks ago, I received your *Quarter Century*, and must say that it is really splendid. I have already used some of the

formulæ I found in it, and each one is worth to me the price of the book. I forward to you the subscription price for one year of the PHILADELPHIA PHOTOGRAPHER, which I hope to receive regularly.

Let me tell you about my developer. After having used, with more or less success, pyro and oxal. potass., I at last tried hydroquinone, and found it to beat the others all hollow, if used in this way and all in one solution:

Water . . . . .	7 ounces.
Carbonate of Soda (granulated) . . . . .	50 grains.
Sulphite of Soda (crystals). 240 "	
Hydroquinone . . . . .	50 "

This I use over and over, and have developed as many as forty negatives, 4 x 5, with the same amount; as the developer gets older and works slower, I give a little more time in the camera. For drop-shutter exposures I use the solution *fresh*. I develop the negatives a little more than necessary, until the plate is almost opaque by transmitted light; and, after fixing it, I reduce it, as I learned from the *Quarter Century*, either with red pruss. and hypo, or cyanide and iodine. In this way I get splendid detail and quick-printing negatives.

I think this would make a very handy developer for amateurs, as it is all in one solution and keeps well, and does not frill the plates.

Although I have to pay \$1.75 for an ounce of hydroquinone, here in Havana, I find it cheaper than pyro.

LOUIS REINHARDT.

A GOOD FANCY.—Mr. Robert Louis Stevenson, in *Scribner's* for February, preaches an earnest sermon against Realism in fiction as now expounded by its apostles, and says: "This harping on life's dullness and man's meanness is a loud profession of incompetence; it is one of two things—the cry of the blind eye, *I cannot see*, or the complaint of the dumb tongue, *I cannot utter*."

THE 1887 PHILADELPHIA PHOTOGRAPHER IN CANADA.—Mr. M. A. MONTMINEY, of Quebec, says, "The pictures alone are worth more than the price." See the offer in our souvenir.

### ART IN NEWFOUNDLAND.

ABOUT a year ago we had occasion to allude to the excellent landscape work of Mr. S. H. Parsons, of St. John's, Newfoundland, and to the use made of his views in illustrating the Christmas number of the *Evening Telegram* of that city. This year we find that not only has history been repeated, but that the *Telegram* has issued a "*Jubilee*" number in honor of the anniversary of the queen, likewise illustrated by Mr. Parsons, views on the Humber river and

so carefully selected by Mr. Parsons for his camera, but we hope to do that after awhile in another way—as our regular picture. We have, therefore, chosen two plates of a different character—such as are more closely representative of the country of snow, ice and cold, from which they came. The first is "A Dog-team Bringing in Wood from the Country." No picture could more plainly tell its own story. Not even the rude sails hoisted upon each sled, to aid the dogs as they leap and fly over the glacé surface of the snow, need any explanation. It is truly



elsewhere in Newfoundland. We think we count quite forty of Mr. Parsons' views finely reproduced as Mosstypes by the Moss Engraving Co. of this city. The greater portion are from 5 x 8 or whole plate negatives of very superior technical and artistic quality. By the courtesy of all the parties named, we have been enabled to choose from the lot what we would for the pleasure and profit of our readers. We were tempted to choose of the remarkable lake and mountain scenery so beautiful in Newfoundland, and

a "fetching" picture, and no play upon the words intended.

The second choice is in strong contrast with the other. The hardy youth who prepare the loads for the dogs have been caught by the camera while journeying to their work. A lovely tree study is supplied here, too. And that such a tree has been spared by these young woodmen, shows that the artistic sense is alive in them—more than dormant. The view is on the Little Humber Salmonier.

With the copies of the *Telegram* Mr. Parsons sent us a number of albumen prints from

the far North " last summer. Quiet lake and meandering stream ; mountain peak and



his negatives. They are some of the fruit of the long enjoyable "outing" he had "in

protruding bluff, with here and there a thrifty village supply material for them, and

the choice has been made by an artist whose growth we have watched for years, as he has watched the growth of his wonderful country. Thus Mr. L. Chancey writes it in the *Telegram*—

"The rocky pass, and the steep ascent,  
Where the summer wind blows colder,  
And the curious shapes, no two alike,  
Of boulder placed on boulder.  
The river winds its sullen way,  
O'er stones, through reeds and rushes,  
Pausing here to form a bright cascade,  
There, for a romp with the bushes."

*Query:* Why do not more people do this kind of work?

### DANGEROUS ADVICE TO FOLLOW.

BY THOMAS PRAY, JR.,  
Boston, Mass.

THAT theory and experience are not always to be found hand in hand in the practical affairs of the photographer, goes without saying, but when we find some theoretical matter put forth which may be possible in the laboratory, but in the dark-room or the working photographers "lab" a matter of possible death, then it is time to call a halt.

Within the last few days two matters have attracted my attention in the journals that are devoted to progressive photographers or the interests of stockdealers and customers, which call for a caution.

One of these items referred to the use of bichromate of potash in the cleaning of the hands from the stains of nitrate of silver, or the pyro-soda, or other stains on the hands. If the photographer did not have to wash his hands from ten to fifty times a day, he might do what the chemist does and may do—once or twice a week—when dealing with the silver nitrate, without serious prejudice. But no exception can be taken to the fact that bichromate of potash, or potassa, or potassium dichromate, red chromate of potash (or potassa), or any other of its names is a most dangerous article to enter the human body, either by absorption or by means of cuts or abrasions of the skin, and no well read medical man will take exception to the above statement or any part

of it. The hands of the working photographer are all the better medium of induction by absorption from the fact that they are warm and moist a great part of the time. Serious cases of poisoning by the introduction of this substance have been recorded frequently in our medical journals, and they cause death in no small number of the cases, unless the cause is early and accurately diagnosed, and a proper and prolonged treatment followed.

Medicinally, it is a caustic of the irritant class. A dose of it is *one-fifth of a grain*, and few practitioners to-day dare give it at all, even in such small doses. It causes salivation as does the old-time doses of mercury; in over doses it is a violent irritative and corrosive poison. Soda soap, magnesia, and almost any alkaline carbonate are its antidotes.

In the works where it is manufactured workmen frequently lose the septum or partition of the nose that separates the nostrils, and are also subject to ulceration of the hands, arms, and other parts of the body.

Chemically, bichromate of potassa is under the new rating  $K_2Cr_2O_7$ , or potash, chrome, and oxygen. Chromic acid or chromate of iron and sulphuric acid with potassa make dichromate of potassa—poison in each element, how much more so than when singly. Little less dangerous to human life than cyanide of potassium, one of the two most deadly poisons so far as human life goes. It is also a most unfortunate fact that the bichromate of potassa is most readily absorbed by the skin, and the danger cannot be warded off when so absorbed. For when the symptoms come to be apparent there is little help. There is no need of the use of either of the poisons.

I have used for five years the following, and have no soiled hands: Alcohol two fluidounces, iodide of potassium all I can dissolve. When the alcohol is saturated dissolve all the iodide of potassa possible in the two ounces, and so that a few crystals shall be left undissolved *before* the iodine is added, or a few crystals are undissolved, add tincture of iodine (U. S. P.) a few drops until it becomes the color of sherry wine. Then use it by a little cotton plug over the hands

until the stains turn yellow. Wash in hypo solution, when the stains will all disappear. Wash in water and soda soap and go home.

The reason for the use of soda is simple: It is better to use soda with soda than to mix potash and soda. The soap first will *not* facilitate matters. This process is not so rapid as cyanide, but there is no danger to life even if your hands are cut.

If you do not desire partial paralysis, or shrunken or shrivelled arms or limbs, or sloughing sores, or some other slow but certain death, let alone solutions of the bichromate of potash as far as using it on your hands or having your hands in it goes.

#### FLASH LIGHTS.

The craze for instantaneous pictures has called out another dangerous article. It is a compound of chlorate of potassa with magnesium and picric acid, or leave out the magnesium. From what has appeared in the journals the idea seems to be that picric acid is one of, if not *the*, preventive of explosion where chlorate of potash is used.

Now the fact plainly stated is that chlorate of potash and picric acid *make the most easily exploded mass possible*, especially where there is a jolt, a jar, or *powdering with pestle*. The chlorate of potash and magnesium are easily exploded, and the adding of picric acid completes the train. On no account should any one carry the mixture into the house where the family *can be* mutilated. Chlorate of potash has been too much used by physicians in throat diseases, and is as dangerous to the internal in solution, as to the external in powder and pestle. Poison and explosive! Accidents have occurred, serious ones in attempts by unread druggists to compound such mixtures.

Fuse flash powders can be used although the writer has not used them yet; but chlorate of potash and magnesium with picric acid in combination are *unsafe*.

Without doubt some safe way of using magnesium can be had, but of any of the above mixtures beware. The working photographer, who, as a rule, has neither the cash nor leisure to indulge in an enforced holiday, in which to nurse chemical burns or injured eyes, can safely write and prac-

tise one more of the *donts*; he or she will be sure to be safe as to both items referred to in this already lengthy article.

[Translated for the Philadelphia Photographer.]

## HYDROQUINONE DEVELOPMENT.

BY M. BALAGNY.

FOR some years past this product has engaged the attention of several skilful photographers. We may say that in general these experiments were not followed by success and they were not continued. Some made use of this product as pyrogallic acid is used, by adding, for example, bromide to avoid fogging; others mixed the hydroquinone with the pyrogallic acid; a decomposition took place, the bath was far from being satisfactory, and the whole thing was abandoned. There is, however, something to do, even a great deal to do, and our only pretention is to have rendered this development absolutely practical, by composing a formula which is absolutely automatic.

Make the three following solutions:

1.

Sulphite of Soda	. 250 grm. (8 oz. Troy.)
Water	. . . 1 litre (34 fl. ozs.)

2.

Carbonate of Soda	
(Crystals)	. . . 250 grm. (8 oz. Troy.)
Water	. . . 1 litre (34 fl. ozs.)

3.

Hydroquinone	. . . 10 grm. (154 grains.)
Alcohol at 40°	. . . 100 c. c. (3 fl. ozs. 3 drs.)

When you wish to develop put in a glass:

Sulphite	. . . 100 c. c. (3 fl. ozs. 3 drs.)
Carbonate	. . . 200 c. c. (6 fl. ozs. 6 drs.)

To which add 20 c. c. (5 fl. drachms) of the alcoholic solution of hydroquinone, making 320 c. c. (10 fl. ozs. 1 drachm) of solution ready to use.

When this bath is new it is of great energy and can be used for instantaneous clichés, even those very quickly made. If we have obtained, for example, six or more instantaneous clichés during the day, we return to our laboratory, we make our bath as it has been said above, and we develop

successively for our six clichés, without adding anything. If by chance the fifth or sixth cliché comes up slowly, or if we are in a hurry, we make a small quantity of new bath and add it to the bath which has already been used, or else we place in this last a few cubic centimetres of the alcoholic solution of hydroquinone. We develop in the usual way in a glass dish, care being taken that the plate is well covered with the liquid and we thus place an opaque cover over the dish so as to avoid all possible fogging.

The bath, when new, is rapid and very energetic, and it is well to raise the lid from time to time so as to watch the development, which should be stopped precisely as we would do in using pyrogallie acid, that is to say, with the same intensity by *transparence*.

We then wash well our cliché, give an alum bath at five per cent., and fix. We place our bath in a special bottle, without filtering it, and for another operation we simply decant. If to-morrow, or the day after, we make some more instantaneous work the same bath may be used without adding any of the new bath. Should the space of time between a first and a second operation be too long, it is perhaps more prudent to make a new bath. When the bath is not active enough for instantaneous work, it can be used for portraits, groups, landscapes of short exposure, from one to five seconds, for example, after which it can be used for clichés of long exposure, for instance, interior views, the reproduction of paintings, etc. In these different cases the image will take longer to show itself, sometimes ten minutes and even more; but if we have patience we are sure of having a magnificent cliché, and this without any attention paid to the development. We place the plate in the developer, seeing that it is well covered, and then put a cardboard or wooden lid over the dish. It is then possible to open the dark-room.

The operator can now attend to his other business—write a letter, receive a visitor, eat a meal, etc., and on his return he will find that the cliché has quietly come, and that the blacks show no sign of hardness; and, nevertheless, by this process, that is to

say, by slow development, it is easy to reproduce black lines on white, and the blacks come so pure and so intense that there is no necessity for strengthening with sulphhydrate of ammonia. In the same manner, that is to say, with the old bath, we can obtain projections, stereos, and positives by transparence. By increasing the exposure in the frame, say twenty seconds to diffused light, and making use of a very old bath, the tone is changed, and warm blacks and magnificent sepias are obtained. But for this it is necessary that the development should be made very slowly. To resume, the older the bath the more time must be given, and this without regard to the rapidity of the plate. Bromide should never be used, as fogging is not to be feared. A single drop would stop the development. The more hydroquinone used, the quicker the image will appear. All tastes can be pleased, those who want a rapid development and those who want it slow. In all cases success is certain.

In making the bath the alcohol may be omitted, and one that will keep *new* indefinitely may be made in the following manner:

Place in a vessel holding a quart 300 c.c. (10 fl. ozs. 1 drachm) of the solution of sulphite at 25 per cent., and 600 c.c. (20 fl. ozs. 2 drachms) of the solution of carbonate at 25 per cent.

Add 100 grammes (3 oz. Troy 2 drachms) of hydroquinone in powder and agitate until thorough solution. With this process we always have a new bath at our disposal, it is used in the same manner as we have indicated for the new alcohol bath. The chlorhydrate of hydroxylamine may be added to the hydroquinone.

Make the following solutions:

1.	
Alcohol . . .	150 c.c. (5 fl. ozs. 1 dr.)
Chlorhydrate of Hydroxylamine . . .	10 grm. (154 grains.)
2.	
Water . . .	150 c.c. (5 fl. ozs. 1 dr.)
Caustic Soda . . .	10 grm. (154 grains.)

Mix these two solutions by putting solution 1 into solution 2, then to develop add

100 parts of the mixture to 100 parts of our hydroquinone formula.

This development is, it is said, very energetic. Not having at hand any chlorhydrate of hydroxylamine, we have not been able to try it. Hydroquinone of excellent quality is worth to-day about five cents a gramme. This last salt has given us such good results that we doubt if any better ones can be obtained with hydroxylamine.

The automatic bath so long sought for is now found and will soon take the place of iron and pyrogallie acid. With these last, sensitive preparations frequently fog, whilst this never happens with the hydroquinone developer. No more complete and better praise can be given.—*Moniteur*.

### THE OPEN CORNER.

REPRODUCTION OF NATURAL COLORS.—We revert, for the moment, to the question of producing colors on the plate, so as to continue what we have said in our last correspondence. M. Bolas informs us that he has repeated some experiments of M. G. Staats for the purpose of determining the photochromatic properties of chloride of silver. The results obtained, although they are not of a nature to satisfy the wants of a dealer in colored prints, possess, nevertheless, some color. With a little good will we can recognize, although dark, *blue, orange, green, and red* tints. This experiment is made in the following manner:

A silver plate, well polished, is placed in a five per cent. solution of ferric-chloride, in which it is allowed to remain until it acquires a slaty tint. It is then removed from the solution, dried as rapidly as possible, without the use of heat, and exposed under red, green, orange, and blue plates. In full sunlight this exposure is for a few minutes only; at the end of this time the above mentioned colors appear on the sensitive plate. They are rapidly dissolved by the ammonia. If the plate be heated before thus exposing it to the light, it first takes a violet tint, then a red color, and at the same time, it loses, more or less, its sensitiveness for the yellow and green rays. We hope to see these curious experiments continued.—DR. PHIPSON.

ON THE PRESENCE OF PHOSPHORIC ACID IN IMPURE WATER.—Pure water, good to drink, never contains phosphoric acid; it is otherwise when corrupted by the infiltration of sewer water. In this case it is possible to show the presence of phosphoric acid (in the state of phosphate of soda and ammonia) in the following manner: To one quart of the water to be examined, add a few drops of a solution of very pure potassic alum, then, stirring, one or two drops of ammonia. The precipitate carries down all the phosphoric acid. Acetic acid is now added until a distinct acid reaction is obtained, and the *phosphate of alumina* which remains is separated. This is dissolved in nitric acid, and the warm solution is treated with the molybdate of ammonia in the ordinary manner.

ACTION OF LIGHT UPON THE ELECTRIC DISCHARGE.—The action of light upon electricity is again attracting attention. Lately the singular effect of light upon electric conductivity, especially with regard to selenium, has been studied. To-day another very curious fact has been made known relating to the electric discharge between two conductors. It is at the Philosophic and Literary Society of Manchester, that Professor Schuster recently called attention to an experiment of Dr. Hertz, at Carlsruhe. According to this scientist, when the ultra-violet rays are thrown upon metallic spheres, between which pass electric sparks, it is found, that under these circumstances the sparks pass more freely, and they may be obtained of a much greater length. It would seem from this that the ultra-violet rays of the solar spectrum have the property of facilitating the electric discharge between two metallic conductors—that is to say, to render the air, between these two conductors better adapted to conduct electricity. Nevertheless, we must not hasten to admit this fact before it has been confirmed by other experiments. It may be recollected that a long time ago Morricini, an Italian scientist, and Mrs. Summerville, a learned English lady, author of a treatise on *Physical Geography*, had announced that these same violet rays had the property of magnetizing sewing needles.

Later on it was found that the needles were already magnetized before the experiment, and that exposure to the light did not magnetize them.

BURNET ON THE PACIFIC COAST.—Chancing into the office of Mr. Partridge the other day, previous to the receipt of the December PHOTOGRAPHER, I was asked by him if I wanted your new publication of Burnet's essays on *Art*. Of course I was "put down" for one.

A short time ago I read a paper before our Association on "The Application of Art Principles to Photography." Before writing it, I consulted all the works on art I could find. In many of them I found reference to Burnet, but that work could not be found in any of the San Francisco libraries, either private or public. I am, therefore, given pleasure by hearing that you have undertaken to re-issue a work that should never have been allowed to go out of print. The late Mr. Virgil Williams, Director of the San Francisco School of Design, once gave what he modestly called a "talk" upon heads, their correct posing, etc. He mentioned the different works that would be useful to the student of art, among them Hamerton and Burnet. So here we have Burnet again, but always in the distance. A known, and yet an unknown, quantity.

Mr. Williams, besides being a delightful gentleman of learning and wit, was an enthusiastic amateur. He contemplated giving us a series of what he called at his school "talk-to's," but death robbed us of a sincere and worthy friend, and we only heard the first of his intended lectures—"Heads."

I was thus prompted to write the paper I inclose you. I find that books upon art are numerous enough, but to subtract from their teachings and make allowance for certain difficulties, is difficult, as you yourself may have experienced, though not to the same extent as myself, as witnessed by *Quarter Century*.

A. J. TREAT.

SAN FRANCISCO, CAL.

We have had much pleasure and profit in

reading Mr. Treat's excellent paper, and hope to induce him to allow us to give it to our readers.

[Translated for the Philadelphia Photographer.]

## CONVERTING BLUE FERRO-PRUSSIAN PHOTOGRAPHIC PRINTS INTO BROWN PRINTS.

BY M. M. GAUTIER.

THIS result may be obtained by the following process:

The positive blue print thoroughly washed and dried is plunged into a solution of ammonia, in which it is kept until it has nearly or entirely lost its color. (The operation lasts from two to four minutes.) The prints print is rinsed and plunged into a bath of tannic acid, then the operation is stopped as soon as the desired sharpness and tone are obtained. This last operation requires a bath of about twelve hours; if at the end of this time the color be not dark enough it is intensified by adding to the bath a few drops of ammonia, after a lapse of one or two minutes rinse in abundant water. The prints thus obtained are very beautiful and worthy of being kept, recalling by their color especially sepia drawings. I have not had time to try all the ferroproussiate formulæ; the following have been used to obtain my prints:

1st. Solution for preparing the sensitized paper:

Tartrate of Iron and Potash	15 parts.
Red Prussiate of Potash	12 "
Rain Water	250 "

2d. Solution to remove the color of the print:

Ammonia at 22°	100 parts.
Rain Water	900 "

3d. Solution to give the brown tone:

Tannic acid	10 parts.
Rain Water	500 "

Dissolve and filter.

M. Ray gives another formula for toning prints made by the ferroproussiate process:

Prints may be given the black tone by plunging them into a solution of 4 parts of potash in 100 parts of water; then when the blue color has entirely disappeared under

the action of the potash, and a yellowish color has taken its place, they are immersed in a solution of 4 parts of tannin, also in 100 parts of water; then washing them again, we obtain prints whose tone may be assimilated to that of pale writing ink.—*La Nature*.

## TO MAKE IT MORE AGREEABLE UNDER THE SKYLIGHT.\*

BY RUDOLPH GOEBEL.  
(St. Charles, Mo.)

For at least ten years I have used a large curtain (unbleached cotton) over my whole skylight. It is a great protection from heat as well as from the cold weather. During the hot season I always keep the skylight covered thus (when I am not operating), or partly so.

The first drawing will show my plan. The ordinary curtains under the skylight make the light softer, but they alone do not keep the heat out. About six years ago I placed an awning on the roof, and thought I could do without the big curtain; but made a mistake, and had to put up the latter again.

The construction is very plain: I place a pole, four inches in diameter, the whole length of the skylight, on one side, with flanges at the ends for the light rope to run in, which holds a weight of about 40 pounds. This weight will hoist the curtain inside of my operating-room. On the top of the roof I have a small box to protect the curtain from bad weather. I have a small windlass, which I use to let the curtain down. The windlass (see Fig. 2) has a ratchet or stops, so that I can let the curtain partly down, or

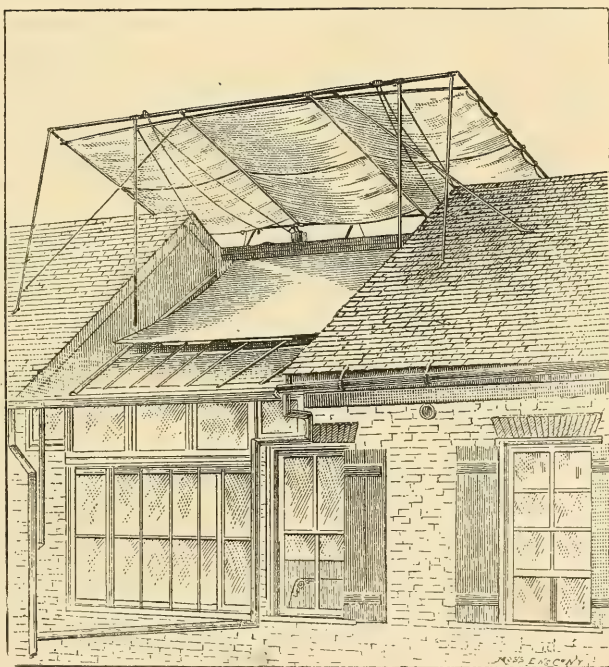
entirely so. During the hot season (dog days) I would rather do with one meal less a day than be without this arrangement.

The rope for pulling down the curtain runs outside, over a pulley, and enters the room on the lower sash of the side light, connecting with the windlass.

To make every thing last and work easily, I have under the sash, which is at the lower end of the curtain, two wooden rollers, about three feet long, each made of hard wood. They are supplied with ordinary curtain fixtures and brackets. These rollers, when using the curtain, turn on the sash of the skylight, so the curtain will not touch the sash.

Operators who cannot use a weight, can get rollers made, with springs, of any size. They are made of wood and tin, from ten to twenty-five feet long. The canvas or cotton cover will last from two to three years.

FIG. 1.

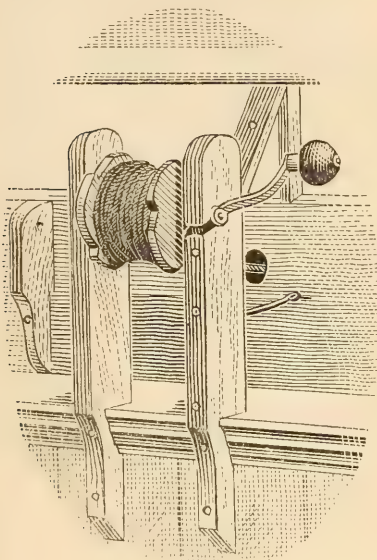


For all galleries in southern climates this curtain arrangement will be of great benefit. The heat from the operating-room will permeate the whole building, and make life a

\* Written for *Mosaics*, but received too late.

burden if not stopped. The craft is welcome to the suggestion.

FIG. 2



P.S. Can any one give the fraternity a good recipe for making *good sticking paper*? I never saw as good an article as there was in the market in daguerrotype times, thirty-five years ago.

### PIZZIGHELLI'S DIRECT PLATINO-TYPE PROCESS.

THE importance of the modifications of Pizzighelli's direct platinotype process now described, will be understood when we mention that the old iron solution—so different and troublesome to prepare—is no longer used, its place being taken by a double oxalate of sodium and iron (sodium-ferric oxalate).

Captain Pizzighelli says: In relation to my recent memoir on the "Direct Platinotype Process," I remarked that in all probability some of the definite double salts of ferric-oxalate might be employed, and since that time I have continued my experiments in this direction, not only with double salts prepared by myself, but also with samples obtained from the firm of Schuchardt, in Gortitz. The result must be considered as very satisfactory, and, as far as simplicity goes, the method leaves nothing to be desired.

Of the double salts experimented with, the sodium-ferric oxalate proved the most satisfactory, the corresponding potassium salt giving less sensitiveness; while the ammonium salt, although giving greater sensitiveness, gives less brilliant images than the sodium salt, and, moreover, images having tendency to a cold, bluish tone, still, for very hard negatives, and in the reproduction of pencil drawings, the ammonium salt may, perhaps, occasionally be used with advantage.

In the preparation of the sensitive paper considerable variation is allowable, and the following three methods give results which are nearly identical:

#### FIRST METHOD.

Arrowroot paste is prepared with one part of arrowroot and ten parts of water, and when this is cold, it is applied to the paper with a sponge—one sheet requiring from fifteen to twenty grammes of the paste. When the paste has been well distributed with the sponge, it is equalized and smoothed with a badger softener, and the sheet is hung up to dry. After the drying the process is repeated, and the sheet is again dried. Coating it smoothly, a sheet takes about five minutes. The arrowroot paper can be stored for use in a dry place when it is sensitized with a preparation made in the manner about to be described.

Four solutions are required—A, B, C, and D.

A.—Chloro-platinite of Potassium	100 parts.
Distilled Water	6 "
B.—Sodium-ferric Oxalate	40 parts.
Sodium Oxalate Solution (3 per cent.)	100 "
Glycerine*	3 "

In preparing the solution B, the sodium oxalate solution is warmed to about 40° or 50° C., and then the sodium-ferric oxalate is dissolved in it. On cooling, a little saline matter separates, so filtration is necessary.

C.—Solution B.	100 parts.
Potassium Chlorate	0.4 part.

\* The addition of glycerine to this and the following solutions is only necessary in very dry weather.

D.—Mercuric Chloride Solution (5 per cent.) . . . . .	20 parts.
Sodium Oxalate Solution (3 per cent.) . . . . .	40 "
Glycerine . . . . .	1.8 part.

For sensitizing a sheet (demi size) when black tones are desirable, we must take :

Solution A. . . . .	5 c. c.
Solution B. . . . .	6 "
Solution C. . . . .	2 "

For hard negatives the quantity of solution C must be diminished, and B must be increased to the same extent; whereas for specially soft negatives the reverse holds good.

For brown tones the following is used :

Solution A. . . . .	5 c. c.
Solution C. . . . .	4 "
Solution D. . . . .	4 "

The above sensitizing solution gives a sepia brown tone, and intermediate tints can be obtained by increasing the proportion of C, and correspondingly diminishing D.

The application of the sensitizing solution to the paper is effected by means of a suitable brush (not tin mounted) following the use of the softener, as before. The sheet is then dried at about 30° or 40° C.

#### SECOND METHOD.

In this method, the sodium oxalate—in fact, the developing agent—is not added to the iron solution, but mixed with the arrowroot used for sizing; and the arrowroot paste used has the following composition :

Arrowroot . . . . .	2 parts.
Sodium Oxalate Solution containing 3 per cent. . . . .	100 "

The method of coating the paper with the starch paste is the same as already described.

*Sensitizing the Paper.*—The solutions A, B, C, and D, used, have the same composition as in the case of the first method, only the iron solution B is made up with water instead of with ferrous oxalate solution.

In order to prevent mistake, the series is given below as A<sub>2</sub>, B<sub>2</sub>, C<sub>2</sub>, and D<sub>2</sub> :

A <sub>2</sub> .—Potassium Chloroplatinite. . . . .	1 part.
Distilled Water. . . . .	6 parts.

B <sub>2</sub> .—Sodium Ferric Oxalate . . . . .	40 parts.
Distilled Water . . . . .	100 "
C <sub>2</sub> .—Iron Solution B <sub>2</sub> . . . . .	100 "
Potassium Chlorate . . . . .	4 "

D <sub>2</sub> .—Mercuric Chloride solution (3 per cent.) . . . . .	20 vols.
Sodium Oxalate Solution (3 per cent.) . . . . .	40 "
Glycerine . . . . .	1.8 "

The general directions as to the series A, B, C, and D, apply equally to the preparation and use of the series A<sub>2</sub>, B<sub>2</sub>, C<sub>2</sub>, and D<sub>2</sub>.

#### THIRD METHOD.

This method is a simplification, as the sizing of the paper is not a separate operation, the thickening material being mixed with the sensitizing preparation. For this method, four solutions, which are designated A<sub>3</sub>, B<sub>3</sub>, C<sub>3</sub>, and D<sub>3</sub>, must be prepared, and the composition of these solutions is as follows :

A <sub>3</sub> .—Potassium Chloroplatinite. . . . .	1 part.
Distilled Water . . . . .	6 parts.
B <sub>3</sub> .—Sodium Ferric Oxalate . . . . .	40 "
Powdered Gum-arabic . . . . .	40 "
Solution of Sodium Oxalate (3 per cent.) . . . . .	100 "
Glycerine . . . . .	3 "

To prepare B<sub>3</sub>, the sodium oxalate solution is first heated to 40° or 50° centigrade, when the iron salt and glycerine are stirred in. After the former is completely dissolved, the solution is transferred to a mortar, when the gum is gradually added, and thoroughly incorporated. This being done, the mixture is allowed to stand at rest for some hours in order that small agglomerations of gum may thoroughly dissolve, after which the whole is again incorporated, and then squeezed through a cloth.

C <sub>3</sub> .—Iron and Gum Solution, B <sub>2</sub> . . . . .	100 parts.
Potassium Chlorate . . . . .	0.4 part.
D <sub>3</sub> .—Mercuric Chloride Solution (5 per cent.) . . . . .	20 parts.
Sodium Oxalate Solution (3 per cent.) . . . . .	40 "
Powdered Gum-arabic . . . . .	24 "
Glycerine . . . . .	1.8 part.

Solution D<sub>3</sub> is mixed in a similar way to that recommend in the case of B<sub>3</sub>.

The proportion in which  $A_3$ ,  $B_3$ ,  $C_3$ , and  $D_3$  are to be mixed for use are analogous to those of the first method; and the following may be mentioned as suitable for black images under ordinary conditions:

$A_3$ .—Platinum Solution . . .	5 c. c.
$B_3$ .—Iron and Gum Solution . .	5 "
$C_3$ .—Gum and Chlorate Solution .	2 "

When, however, sepia-brown images are required, the following may be used:

$A_3$ . . . . .	5 c. c.
$C_3$ . . . . .	4 "
$D_3$ . . . . .	4 "

The application of the mixture is made with the brush, according to the instructions already given, and during the application numerous small bubbles are formed; but these can be disregarded, as they disappear completely when the coating is smoothed with the badger softener. The gum layer dries with a slight gloss, but no special precautions are necessary in drying.

It should be mentioned that the third method appears to be, on the whole, the most convenient, and the most worthy of recommendation.

After drying the paper should be preserved in the chloride of calcium box, but the paper prepared as now recommended seems to be far less prone to alteration than that prepared by the older methods, as specimens kept for ten days without any special precautions, gave results quite as good as those obtained on paper which had been kept in the chloride of calcium box.

Nothing very special is to be said about the printing, except the action of light must go on until the image shows the intensity it should have when finished—in short, there should be no over-printing.

The printing being finished, the paper is immersed in the following:

Hydrochloric Acid . . .	1 volume.
Ordinary water . . .	80 volumes.

This solution is changed two or three times—in fact, until it shows no further trace of yellow color—after which there is nothing to be done but to wash the platinotype print in water, and to dry.

Under-printed images may be developed

in a cold solution of sodium or potassium oxalate; and, in conclusion, it should be mentioned that the iron salt in the solid form, as also its solution and the mercuric solution, should be kept in the dark.—*Photo. News.*

## THE ADVANTAGES OF SLOW DEVELOPMENT.\*

BY EDWARD BRIGHTMAN.

IN choosing development as the subject of my short paper, it may perhaps be considered that I have selected a theme which has been worn nearly threadbare; but although so much has been written and said upon the subject, I think in the majority of cases the idea has been more to bring forward and claim advantages for some pet formula rather than teach principles. For my part, I place but little confidence in any formula, and consider that each picture should have a development suited to the subject.

We are all, perhaps, too much inclined to look upon development as a mere chemical or mechanical operation. The application of color to the canvas by the brush of the artist is without doubt a strictly mechanical act, but as the artist by a judicious blending of colors, and an intelligent application of his knowledge and skill, converts a mere mechanical operation into a work of genius, so the photographer, by a judicious use of his chemicals, and the exercise of his experience, can stamp upon his work a certain character and individuality as distinctive as the touch of the artist.

At the present time there is a strong tendency to make our operations more and more mechanical, and to leave less to intelligence and judgment. One example of this is the use of the *Tables of Exposure*, which I consider to be a complete delusion, and, so far from being any assistance to a beginner, only lead to endless complications and want of success, and moreover are one and all entirely misleading.

Any table or tables can be of no possible value unless they relate to quantities or conditions which are constant. In the case of exposures, we cannot say we have a single condition which is constant, excepting the

\* Paper read before the Bristol Camera Society.

relation of the apertures of our lenses to their focal lengths.

The rapidity of the plates of one maker may vary from those of another; even plates of the same nominal rapidity from the same makers will vary considerably; the light varies from hour to hour, and from minute to minute; the character and color of the subject vary still more widely. How, then, can it be possible to compile a set of tables with any approach to accuracy?

Misleading and untrustworthy as all these tables may be, they are rendered still more so when further complicated by the use of the actinometer. This little instrument, useful as it undoubtedly is in the case of carbon printing, is utterly unreliable as an aid to judging the correct exposure for gelatine plates in the camera. Doubtless, the instrument might be of some service if the actinic properties of the light were in direct proportion to its luminosity, but it is a well-established fact that late in the autumn, and in the evening when the light has a yellowish tinge, the actinism of the rays is very feeble, though the light is apparently bright and powerful. Under such conditions, the sensitiveness of the test paper to such light increases in greater ratio than the sensitiveness of the bromide plate. In proof of this, we may take a slip of the sensitive paper and expose to the light, and it may take ten minutes to give, say tint No. 1. An ordinary gelatine plate may then be exposed under a negative, and will give a fully exposed transparency in one second; then after dark let us expose a second plate to a gas jet under the same negative, and we get a similar transparency in, say, four seconds, or four times the exposure previously required. If, then, the actinometer were a reliable guide, we should have to expose the paper forty minutes to the gas jet to get tint No. 1, but we might expose forty hours or forty days, and not get any visible impression upon the paper. This example will illustrate the fallacy of using a sensitive surface of chloride of silver as a standard of comparison for a film of bromide of silver under development. I fear, however, I am wandering from the subject of development to that of exposure. The secret of success lies not so much in exposure as in develop-

ment. Let the exposure be sufficient, or let us over-expose and learn to develop properly.

To develop properly, it is necessary in the first place to give sufficient exposure to obtain detail in the deepest shadows without the necessity of forcing development with an excessive proportion of ammonia. Over-exposure can be compensated for by keeping down the ammonia during development, but under-exposure is always fatal, and will never give satisfactory results. In speaking of over-exposure, I use it as a relative term, for what may be over-exposure with one developer may be a correct exposure with another.

It is impossible to lay down hard and fast rules for development, for a formula which gives admirable results with one subject may be totally unsuited to another, and it is only by a careful adaptation of the components of the developer to the subject that the best results are to be obtained; and in order to adapt the developer to the subject, it is necessary that we should understand the results obtained by varying the proportions of the ingredients.

We may roughly formulate the action of our developer thus: Pyro, the developer proper, gives density, ammonia detail, while the bromide keeps the shadows clear and checks the rapidity of development; and the slower the development the greater the number of gradations between the highest lights and the deepest shadows. Now, as we have in nature an infinite number of gradations, it follows that a slow development will give a better and more truthful rendering of a subject than a rapid one.

In order to develop slowly, three courses are open to us: we may use a large proportion of restrainer, a small proportion of ammonia, or we may add our ammonia in successive small doses until the requisite density and detail are obtained. This latter method gives by far the best and most perfect results, and, moreover, enables us to have entire control over the development, correct errors in exposure, entirely avoid fog, and obtain brilliancy combined with delicacy and softness.

Those who advocate rapid development invariably object to the slow method on the ground of its causing a yellowness and dis-

coloration of the film. I readily admit that a very extended development may cause a slight discoloration, but cannot consider this a serious objection, because such discoloration is easily removed by immersion in the acid alum solution; moreover, the advantages of developing slowly are so great that it would far outweigh the disadvantage arising from a slight discoloration of the film, even supposing such stain were permanent and not removable.

In the instructions issued by most manufacturers of plates we are told to use certain quantities of pyro, bromide, and liquid ammonia; then if the picture flashes out rapidly and shows signs of over-exposure, we are directed to apply more bromide, or, in other words, when the picture is half ruined, we are to do what we can to prevent utter failure.

This method of proceeding is to my mind entirely wrong, as it is building up a picture on a faulty foundation, for when once a trace of fog has made its appearance it is impossible to carry the development further without adding to the fog to a greater or less extent; but by slow development, even if a plate has been exposed five or ten times longer than necessary, it is possible to produce a negative without the slightest trace of fog, and, moreover, without any loss of brilliancy; and, in fact, equal in every respect to one which has received only a normal exposure.

[To show what could be done by slow and careful development, the lecturer here handed round four transparencies which had been exposed under the same negative for 5 sec., 25 sec., 50 sec., and 300 sec. respectively. There was little difference between them, all four being equally clear and brilliant.]

In development I employ two standard stock solutions, varying the proportions as the circumstances may require:

#### No. 1.

Pyrogallie Acid . . .	1 ounce.
Bromide of Ammonium . . .	$\frac{1}{2}$ "
Citric Acid . . .	1 drachm.
Water . . .	8 ounces.

#### No. 2.

Liquid Ammonia . . .	1 ounce.
Water . . .	7 ounces.

For an average subject possessing a fair amount of contrast, one-quarter drachm of pyro solution is added to each ounce of water; should the subject be one with great contrast, the quantity of the pyro solution is lessened; should it be flat and wanting in contrast, the quantity is increased; but in every case the ammonia solution, instead of being at once poured on, is added by successive small doses of a few drops at a time. This slow and careful addition of the ammonia I consider to be the one great secret of successful development.

I can admit that for the professional portrait photographer working in the studio with the light under control, that he may so accurately time his exposures that there may be no necessity for such careful and cautious development; but with amateurs who, like myself, practise upon all classes of subjects, from the dimly lighted interiors of old churches or equally dark glades of our glens and woodsides, to the open landscape in brilliant sunshine, errors of exposure must occur; but if we observe the rule of always giving full exposure and developing slowly, not a single plate should be lost.

In addition to the advantage of absolute certainty of results by this method of working, the negatives all round are certainly superior to those produced by rapid development.

### OUR PICTURE.

WE now resume our prize-takers' series of pictures, and give reductions of four of the larger gems of the Chicago Exhibition of the P. A. of A.

It was our intention to use but one picture only by each winner of a medal, and only those made by winners of medals. But when we came to make our choice we could not believe it would be agreeable to our readers to overlook the work of our honored ex-President Cramer, and so we have chosen two of his collection as a sort of preface to what are to follow. When this choice was made, and the negatives were already printing, we were not aware that Mr. Cramer was about to prepare something for us all that would outdo even "The Tambourine Girl" and "The Young Artist,"

which appear now. Of course, we allude to "The Fairy Dance," which embellished our early February issue. Neither did we discover, until about to prepare these notes, that we had permitted the address of Mr. H. A. Randall, who produced the lovely picture of "The Flute Player," to be given as Detroit instead of Ann Arbor, Mich., where Mr. Randall truly lives. But Michigan and Mr. Randall are both generous and will overlook the error when they are satisfied that their work will diffuse a useful lesson over all the photographic world. United with the pictures named from the West and North, we have "Gathering Oranges" from the sunny South studio of Mr. C. W. Motes, Atlanta, Ga., a refreshing bit of realism which is full of artistic feeling and technical excellence. Here is a quartette, then, that will supply all the disciples of idealism, realism, and impressionism with useful suggestions and give æsthetic pleasure. The most enjoyment and the best understanding will come to those of what we may now safely call the *Burnet* school, since so many are studying by the rules of that satisfactory teacher. Thoughtful conception, graceful attitude, careful composition, judicious and harmonious lighting, technical excellence, and all the minor qualities of real pictures that are to be found here need not to be pointed out by us to the intelligent class of our readers who will take the pains to study them. We confess the personal encouragement we feel when we see such pictures produced as these are, and then turn from our own thoughts upon them to the practical remarks which come to us from those to whom we are indebted for such profitable examples of photography.

Mr. Cramer informs us that the negatives of "The Young Artist" and "The Tamboirine Girl" were made with a No. 9 A Voigtländer portrait lens and Cramer's "lightning" plates, size 20 x 24 inches. The plates were developed with his "Formula No. 11," which we add for the benefit of those who may not have seen it in print, as follows:

*Alkaline Solution.*

Sulphite of Sodium (crystals)	6 ounces.
Carbonate of Sodium (crystals)	1½ "
Water . . . . .	64 "

The alkaline solution, as well as the sulphite of sodium, must be kept in well-stoppered bottles. If old and decomposed it will cause yellow stain.

If dried or granular sulphite of sodium is used, 3 ounces will be found equal to 6 ounces of crystals.

12 drachms of carbonate of sodium crystals (sal soda) are equivalent to 5 drachms carbonate of sodium, dried, or 6 drachms carbonate of potassium.

*Pyro Solution.*

Distilled or Pure Ice Water .	6 ounces.
Sulphuric Acid . . . .	15 minims.
Sulphite of Sodium (crystals)	1 drachm.
After this is dissolved—add	
Pyrogallie Acid . . . .	1 ounce.

The solution should have a bright yellow color and smell like burning sulphur, owing to the liberation of sulphurous acid, which preserves the pyro.

*Developer.*—During cold weather use 8 ounces alkaline solution and from 2 to 5 drachms pyro solution; keep moderately warm (from 65° to 70° Fahrenheit).

In hot weather add to 4 ounces alkaline solution, 4 ounces cold water and from 2 to 4 drachms pyro solution, and keep it cool (below 60° Fahrenheit).

Developer which is too warm or contains too much carbonate of soda or potassium will work foggy.

3 drachms pyro solution will generally be found sufficient for 8 ounces developer, to produce good intensity, if the plates are not overexposed, and if the development is carried on far enough.

The developer can be used repeatedly.

When fresh, it answers best for short exposures.

After having been used once or twice it will work with more contrast and clearness. Therefore it is well to add a little old developer to the new. For overexposed plates old developer should be used, and if much overexposed, restrain by adding to the developer a few drops of bromide solution (1 ounce bromide of potassium to 10 ounces of water).

An underexposed plate should be treated with diluted developer, weak in pyro, for instance: 4 ounces alkaline solution, 1

drachm pyro solution, and 8 ounces of water; use plenty of solution, keep it cool, and change it several times if the exposure has been so short as to require prolonged development.

#### *Fixing Bath.*

Hyposulphite of Soda . . .	1 pound.
Water . . . . .	1 gallon.

Do not expose the plate to light before it is fixed, and leave it in the bath a few minutes longer than apparently necessary, to insure thorough fixing.

To prevent yellow staining of negatives it is of the utmost importance to renew the hypo bath as soon as the solution turns dark.

After fixing, place the negative in a dish containing cold alum solution; let it remain about fifteen minutes to harden the film, then wash thoroughly.

In hot weather, when there is danger of frilling or softening of the film, use the following:

#### *Fixing Bath for Hot Weather*

Hyposulphite of Soda . . .	2 pounds.
Bicarbonate of Soda . . .	$\frac{1}{2}$ pound.
Powdered Alum . . . . .	2 pounds.

Dissolve in 2 gallons of water.

Allow to stand a couple of days until settled, then decant the clear solution for use. This bath will fix somewhat slower than the plain hypo bath, but will produce very clear negatives and will harden the film so thoroughly as to allow subsequent washing without the use of ice. It should be used in tropical climates.

*The final washing* should be a thorough one, as the chemicals, especially the hypo, are more difficult to eliminate from a gelatin film than from a collodion plate. To insure perfect washing, I would recommend the use of a washing tank, with slanting grooves for the plates, which rest on strips placed about an inch above the bottom of tank, allowing a free circulation of water underneath and around the plates. The water should enter at the bottom and overflow on top. Let the plates remain in the tank for at least half an hour in running water. If no hydrant is at hand, wash an hour by changing the water often. If,

through imperfect washing, the hypo has not been thoroughly eliminated, it will cause the negative to turn brown, and fade more or less rapidly, and sometimes show crystallization of the hypo on the film when dry.

After the washing of the negative is completed, pass a clean tuft of cotton or a soft camel's-hair brush over the surface, to remove any sediment from the water adhering to the film, and set aside to dry without heat. After the negative is perfectly dry, it may be heated and varnished with any good negative varnish.

We hear from Mr. Randall through his talented operator, Mr. Ernest Krueger, formerly of Germany, New York, and for a long time at Mr. Cramer's studio in St. Louis. Mr. Krueger is an educated artist, and has produced some very exemplary work. At Ann Arbor, where a large college is located, he has ample opportunity to select splendid models, and he understands how to compose them into pictures. Hewrites: "The model of 'The Flute Player' is a charming young lady of Ann Arbor, and an exceptional one, for she is always willing to drape and pose to accomplish the ideas of the artist. Her gown is composed of ordinary 'cheese-cloth,' or coarse muslin. I used a No. 7 Voigtländer Eury-scope lens and the Cramer 'lightning' plates; Formula No. 11; time of exposure, twelve seconds." The sweet simplicity of this picture cannot be overrated, and its technical qualities are first-class. Study it well.

A more pretentious effort is found in Mr. Motes' realistic picture of "Gathering Oranges." We are all familiar with the work of this veteran artist, and have been charmed by it over and over again. Mr. Motes, even in his most elaborate compositions, characterizes his work by gentle suggestion and a feeling of quiet, which is a part of his individuality. He details his method of working below, and we turn now to what he has to say:

"In response to your request for a few practical remarks upon the management of my subject, I will endeavor to reply. The management of such subjects is, perhaps,

the most difficult branch of our art, and one that requires more thought and prearranging in the mind of the photographer than any other. The first and most important point is to decide what character you want to represent. Next the costume, style, and general arrangement of it. Then the scenery and surroundings to produce the impressions and effect desired. It is a good plan to select a print of some celebrated painting, or, better, to make an original sketch which will suit the character and make such changes in it as will suit your subject, as to position, arrangement of costume, etc., and have it before you so your subject can fully understand it, which will enable her to enter into the spirit of the character, thereby greatly aiding you in the work.

When all general arrangements are complete and the costume is fitted on your subject, bring her into the operating-room with one lady assistant; get her to take the position (which by this time she pretty well understands), and go rapidly, but not hurriedly, to work (without confusion) in arranging position, drapery, and surroundings—ever keeping before you the character represented, and looking well to expression and the artistic lighting and balancing of the picture, keeping cool and never losing confidence in yourself.

The costume used in this picture is made of white nun's veiling. I have used white merino with fine effects (cream color would be preferable).

I suppose I have given all the points necessary.

I desire to say here, for fear you are under a misapprehension as to the picture, that it is not a prize picture, as you intimate in your letter, and I would not like it to go out as taking a prize. You will see by referring to the honorable judges' report at Chicago, that I did not win the "coveted medal."

Wishing you great success this year, thanking you for the honor conferred, and enclosing a check for the P. P. for 1888, which has been my companion for the past twenty-three years, I am ever yours,

C. W. MOTES.

ATLANTA, GA.

Again, as our readers will see, we have chosen from the work of one who did not "take a prize." Yet in *our mind* he did, and our readers will not be unwilling to share our opinion that he should have been awarded a medal.

Our reduced negatives were made by Messrs. Roberts & Fellows, No. 1125 Chestnut Street, Philadelphia. The same skilled photographers did the printing, using the famed N. P. A. paper imported for us by Messrs. E. & H. T. Anthony & Co., No. 591 Broadway, New York.

Next month our quartette will be made up of "The Maniac," by Montfort & Hill; "Man Know Thy Destiny," by Jas. Landy; "The Harpist," by J. C. Strauss; and "The Potter at the Wheel," by Knaffl Bros.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

CAUTION.—As we are now manufacturing plates of a higher degree of sensitiveness than heretofore, sensitometer 24, 25, 26, we would respectfully call the attention of photographers to the fact, that greater care as to light, development, and time of exposure is necessary.

To prevent fog during development, the plate must be kept from the light as much as possible, especially the first part of the development.

The developer itself must be made with the greatest exactness, and of the purest of chemicals, as any variation in its strength or quality affects, to a greater extent, a very rapid plate, where a slow one would not be so affected.

The temperature also of the development should not be lower than 75° F. in winter, nor higher than 85° in summer; the more uniform the temperature of the developing-room, the more uniformly good will be the resulting negatives. Perhaps the cause of the greatest variation in development is due to the differences in strength of sal soda, which, when perfectly dry, is twice as strong as when fresh; the same also applies to sulphite of soda crystals, though not to the same extent. We would, therefore, propose the following method: Get some fresh sal soda weigh 4 ounces (Troy) to 16 ounces

water; now get your hydrometer, make it heavier by wrapping it above the figures with rubber bands, until it is sufficiently heavy to indicate 20 when put in the sal soda solution at about 75° F. Then weigh 6 ounces crystals sulphite of soda to 16 ounces water. When perfectly dissolved test with same hydrometer, see what it will indicate and note the same. All that is now necessary is to have two saturated solutions, one of sal soda and one of sulphite of soda; then dilute until the proper numbers are indicated on the hydrometer, and when the pyro (one ounce) has been added to the sulphite of soda solution, they are both ready for use, always uniform in strength and more readily made up than by weighing.—*Seed Dry Plate Co., St. Louis.*

*Practical Essays on Art.* By John Burnet. Edited and published by Edward L. Wilson, New York.

This is a handsome photographic reproduction of one of the most celebrated sets of essays upon art topics that were ever written. They include "Composition," "Light and Shade," and "The Education of the Eye." The essay on Composition is illustrated with examples from the great masters of the Italian, Flemish, and Dutch schools of painting; as is also that on light and shade. The volume is a handsome small quarto of seventy odd pages, and almost as many full page plates illustrating the principles under discussion. It is invaluable to the artist, and every photographer who cares to make his pictures with life and feeling in them should study the principles so plainly taught by John Burnet in these essays. The book should be in every studio. — *Anthony's Bulletin.*

OUR esteemed contemporary and correspondent, Mr. T. C. Hepworth, editor of the *Camera*, London, is a bright and busy man. Besides his editorial duties he is an industrious worker at the societies and a lantern lecturer—here—there—all over the kingdom.

TREATING PRINTS WITH IODINE.—Mr. Chapman Jones makes known, in the *Photographic News*, his process for eliminating the last traces of hyposulphite of soda re-

maining in the washed positive prints. For this purpose, he makes use of a solution of iodine in iodide of potassium. Take a certain quantity of this solution and dilute it with water until it acquires a pale yellow tint (that of Sherry wine). After the print is fixed in the ordinary manner, wash it in three or four waters and immerse it in a diluted solution of iodine, until the back of the print shows a persistent blue tint. This tint indicates that all trace of hyposulphite is destroyed. To remove the blue color, rinse the print in a solution of sulphite of soda, mixed with carbonate of soda, and *greatly diluted*; a few drops of a strong solution for a quart of water. After this it is only necessary to wash it in two or three waters and then dry.

For this operation it is indispensable to make use of glass or porcelain vessels, and to avoid metal vessels, which are attacked by iodine.—DR. PHIPSON.

THE PHOTOGRAPHIC PROPERTIES OF CHLORIDE OF SILVER.—In the aptitude possessed by the chloride of silver for receiving and fixing the colors of solar light, dwells the possibility of photography in colors. It is necessary to seek if the phenomena which occur are purely physical, or if, for each particular color there is a particular chemical transformation of the chloride of silver. According to Mr. G. Staats, the experiment consists in steeping a well-polished silver plate in a solution of chloride of iron. At the end of ten seconds the plate is withdrawn; it has acquired a slaty, violet-blue color; it is dried rapidly and covered with strips of colored glass (cherry-red, emerald-green, orange, blue). It is exposed for ten minutes to direct solar light; in a few minutes the colors appear. Ammonia dissolves them.—*Phot. Archiv.*

A NEW DEVELOPER.—M. Balagny promised and gave, in the last number of the *Moniteur*, the necessary formulas for using a new developer to take the place of those made with iron or pyrogalllic acid. (See page 137.) He says that both of these substances are dead, and nothing can resuscitate them.

## THE DAGUERROTYPE PROCESS.

WE received the following note a few days ago from one of the editors of a leading monthly magazine in our city :

"Is the art of the daguerrotype extinct? If not, is there a practitioner of the art in New York? It ought to be revived, and you would do me and the public a service by putting a line in your journal of photography on this topic.

Looking back over the beautiful daguerrotypes in my family archives, I wonder at the desuetude of the art."

Such inquiries are not infrequent. As people become interested in photography, collections of pictures are made and old daguerrotypes come in for their just share of admiration. Truly, photography never created anything more lovely than a daguerrotype. But pictures more easily made drove the daguerrotype out of the line, and but few are made in these times. There is no difficulty in the way of making them, however. The Scovill Manufacturing Co. still have the plates in stock, and, since we made them in our first love for the art, we are prepared to instruct in the processes, if there is a demand for the information. Pending the growth of interest in the matter, we give below a brief summary of the daguerrotype process.

The metallic, silvered plates being secured, they must be thoroughly and skillfully polished. Powdered pumice-stone, canton flannel, a little alcohol, and a "buffer" are the working tools. The "buffer" is of two kinds. The first is known as the "hand-buffer" (Fig. 1). It is conducive to muscular development in all weathers and productive of violent perspira-

FIG. 1.

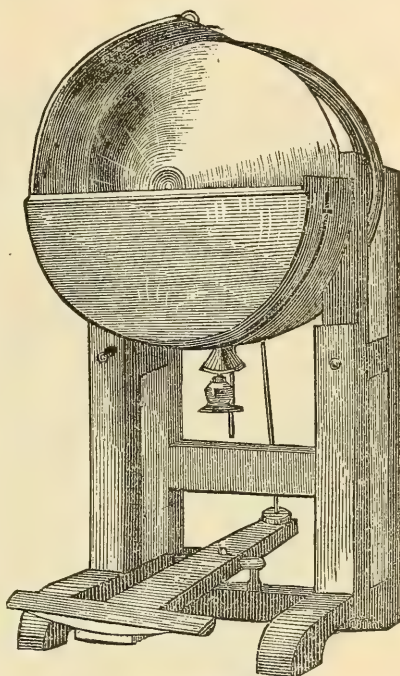


The hand-buffer.

tion and non-success in hot weather. The easier method of "buffing" is performed with the "buffing wheel" (Fig. 2). Instead of applying the surface of the "buff" to the plate, as in the first instance, the

plate is applied to the cone or convex surface of the "buffer," when the "wheel" is

FIG. 2.

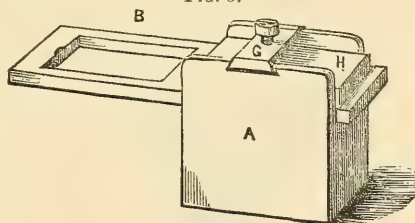


The buffing wheel.

used. In either case, strength and skill are required.

When well polished the plate is placed in a "coating box" or sensitizing box (Fig. 3).

FIG. 3.



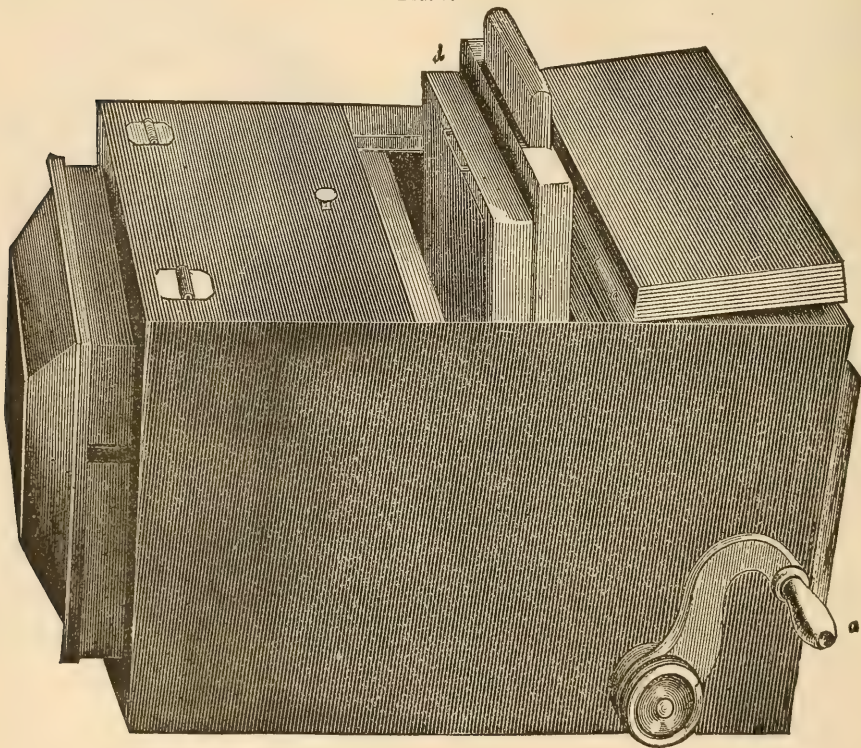
A coating box.

In this the plate is subjected to the vapors of iodine, etc., and becomes sensitive to light. The wooden box, *A*, is supplied with a stout glass jar with a clamp cover, *G H*. The plate is put in the holder, *B*, slid into place over the jar, and the process goes on. At the proper time the plate is removed and exposed in the camera (Fig. 4).

The picture is developed by a process known as mercurializing. The plate is

the image is "out." Experience teaches the time required for this operation.

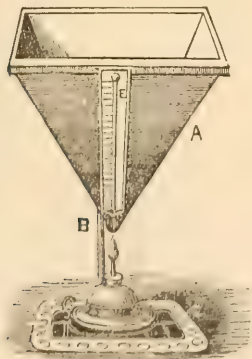
FIG. 4.



The camera.

subjected to the action of heated mercury by means of what is known as the "mercury bath" (Fig 5). Highly purified mercury

FIG. 5.



The mercury bath.

placed in this bath is heated to, say, 80°, and then the plate is subjected to its action until

The imposing appearance of the apparatus used in daguerrotype days may be judged by comparing the camera used then with the "feather-weight" of to-day. All such things may be seen in Prof. Chandler's Photographic Museum (free to the public) at the School of Mines, Columbia College, Forty-ninth Street and Fourth Avenue, New York.

### STEREOSCOPES AND BINOCULAR VISION.\*

BY W. F. DONKIN.

THE lecturer said: Twenty-five or thirty years ago stereoscopes were to be found in every drawing-room, and were as much to be looked for there as a pianoforte; but now they had almost gone out of use. He inquired why

\* Read before the Photographic Society of Great Britain.

these beautiful instruments had become so neglected, and replied that in the first place sheer laziness had something to do with it. It was easier to turn over the leaves of an album than to adjust pictures and examine them in a stereoscope. Then there were many people who failed to combine the two images. Further, the cheaper instruments were so badly made that the two images could not be properly brought together at all. He was somewhat doubtful if it would ever be revived as a popular instrument, however much he might desire such a result. Turning to the history of the stereoscope, he observed that sixty years ago the theory of binocular vision was not at all understood. Doubtless, many men had recognized the difference between seeing with one eye and seeing with two eyes; but it was not until the year 1830 that Wheatstone and other investigators took up the subject with any completeness. Wheatstone constructed diagrams and pictures, and invented the instrument which he named the stereoscope for showing them. This instrument consisted of two plain mirrors, and two flat boards inclined at such angles that the pictures coalesced to the vision of the observer. Some years later Brewster constructed the refracting stereoscope, which, with the substitution, by Dubosc, of Paris, of portions of lenses for prisms, became a popular instrument. This the reflecting stereoscope never was.

On the subject of binocular vision it was pointed out that the eye bears a close resemblance to the camera, but had a marvellous power of self-adjustment. The retina was an ever sensitive film, and there were muscles which, by flattening the lens, or allowing it to assume a more convex form, automatically adjusted the focus for different distances. There was also a self-acting iris diaphragm working with apertures of from  $f10$  to  $f5$ . The spheroidal curves of the surfaces rendered it free from spherical aberration, and it was achromatized. The combination of the two dissimilar images seen with the two eyes was effected in the brain rather than in the retina. There was more sensitiveness in the middle part of the retina than toward its edges, but at the centre there was a small spot of insensitiveness. If a very faint star were looked at

directly, it became invisible from its image falling upon the insensitive spot. The lower animals did not possess this insensitive spot. The average distance apart of the human eye is two and a half inches. By long practice we have learned to combine the two images which the two eyes present to us. Looking fixedly at a near, and then at a distant object, we make two changes in the condition of our eyes. For the near object the optic axes are convergent, whilst for the distant one they are parallel or nearly so; the focussing of the eyes is altered simultaneously with the change of direction of the lines of sight; but these two movements are effected by two quite different sets of muscles. We judge of distance by the change which we thus make; but in ordinary circumstances we are also greatly assisted by aerial perspective, and by other incidental matters. Taking two transparencies, one of double the diameter of the other, made from the same negative, and placing the smaller one at a distance of one foot, and the larger at a distance of two feet from the eye, and looking at them through a tube, a roll of paper which cut off extraneous objects, the two pictures looked exactly alike. There was, however, a difference in the focussing of the eye when looking at the two, and by this single criterion he could tell which was the nearer, and which the farther picture. It was noted as curious that, although one eye only was used in this experiment, and the other eye was closed, yet the closed eye could be felt to move its axial direction in sympathy with the focussing exertion of the open eye, and so aided in impressing us with the idea of the distance at which the object is placed. Moving the mirrors of the reflecting stereoscope while we are looking at the pictures, gives the effect of making the picture appear further off, and increase in size; or of being near but smaller, according as the movement of the mirrors necessitates greater parallelism of the lines of light, or the reverse. When looking through the stereoscope the dissimilarity of the images gives the idea of solidity and distance, but the change of focussing which is required in looking at real objects is wanting. A theory had been put forward to explain how it was that we saw things as solid, and judged of

distance; that the eyes were in incessant motion, and kept running backward and forward, but this was not altogether true; as it had been proved by Dove that the light of an electric spark, or that of a flash of lightning, sufficed to show objects at their relative distances, and it was inconceivable that the muscles of the eyes could move so rapidly as this would require them to do. Le Comte had formulated a theory that one judges of distance by seeing farther objects homonomously—that is, that with the right eye they appear more towards the right hand, and with the left eye they appear more towards the left hand; whilst nearer objects are seen heteronomously—that is, they appear with left eye to be more towards the right hand, and with the right eye more towards the left hand. It appeared to the lecturer that Le Comte is right up to a certain point, but there is a limit to our investigation; at a certain point material gives way to mental ability. It is incomprehensible, and must ever remain so.

### PRACTICAL POINTS FROM THE STUDIO.

THE following solutions for the pyrogallol developer are given by one of our German correspondents:

1. Water, 100 c.cm.; sulphate of soda, 20 grammes. 2. Water, 100 c.cm.; carbonate of potash, 20 grammes. 3. Alcohol, 150 c.cm.; pyro, 1 gramme. 4. Water, 100 c.cm.; bromide, 10 grammes.

For real instantaneous pictures I mix: 1, 60 c.cm.; 2, 40 c.cm.; with 50 c.cm. water, lay the plates in and let them soak there for one or two minutes. Then take the plate out, pour (3) 20 c.cm. in the dish, mix well and develop with it.

For ordinary pictures, I mix: 1, 50 c.cm. 2, 20 c.cm. Water, 80 c.cm. 3, 8 to 10 c.cm., and bromide of potash according to need.

If a negative comes quickly, it will scarcely be a good one; the developing must be done slowly, in fact, up to half an hour long; then good results can be obtained from difficult subjects, such as views with

dark trees and water; while by rapid development, the details do not come out.

**REGENERATION OF THE OXALATE OF IRON BATH.**—Dr. Lagrange gives the following method for regenerating this bath. For 500 grammes (16 ounces Troy) of the bath which has been used, take:

Oxalic Acid . . .	15 grammes.
Bicarbonate of Potash . .	15 “
Pulverized Iron . . .	5 “

Mix the whole in a glass bottle, agitate strongly and filter.—*Progrès Photographique.*

**TO STRENGTHEN PRINTS DEVELOPED WITH PYROGALLIC ACID.**—To strengthen prints developed with pyrogallie acid, the following solution, which may be used without previous washing, is recommended:

Water . . .	80 c.c.
Sulphate of Iron . . .	12 grammes.
Chrome Alum . . .	2 “

Should the strengthening be carried too far, place the print in:

Water . . .	30 c.c.
Chlorhydric Acid . . .	2 drops.

—*Photo. Archiv.*

**DEVELOPING PRINTS ON ALPHA PAPER.**—At one of the last meetings of the Belgian Photographic Association, Messrs. Schleusner and Stappers gave an account of the experiments made by them for the purpose of improving the tone of prints made on *Alpha* paper. They succeeded in obtaining a brown tone by operating as follows. After having developed the image in an iron bath composed of:

Distilled Water . . .	60 parts.
Saturated Solution of Oxalate . .	60 “
Solution of Sulphate of Iron . .	15 “
Solution of Bromide of Potas. . .	15 “

It was fixed in the ordinary hypo-bath, then immersed, *without previous washing*, in an alum bath acidified with citric acid. In this bath, for the greenish color of the print there was substituted a brown tone much more agreeable to the eye, caused, doubtless, by the combination of the silver forming the primitive image, with a com-

pound of sulphur arising from the reaction of the citric acid on the hyposulphite.

**A NEW PROCESS FOR PREPARING TRANSFER PAPER SUITABLE FOR PHOTOZINCGRAPHY.**—Colonel Waterhouse, our learned and sympathetic colleague, sends us from Calcutta the description of a new method for the preparation of photolithographic paper with arrow-root. This preparation offers the advantage of being less costly than that which consists in giving the paper a coating of gelatine, and it yields results as good, if not better, than the paper prepared by the old method.

To the surface of a paper of suitable consistence are given two coatings of the following mixture:

Arrow-root . . . . .	140 parts.
Bichromate of Potash . . . . .	70 "
Water . . . . .	3500 "

After having been exposed to the action of the light, the impressed papers are inked with transfer ink, as is usually done.

The transfer ink should be composed as follows;

Ordinary Transfer Ink . . . . .	100 parts.
Lithographic Ink . . . . .	100 "
Palm Oil . . . . .	7 "

After inking, the prints are wet with warm water, warmer than that used for the transfer of gelatinized papers.

The impressions with arrow-root are readily transferred to zinc without sticking, and give a very clear and sharp result. It is easy to see the economy due to this process, by the fact that it is possible with one-half the expense, to coat more than twice the number of sheets of paper.—*Moniteur*.

**TO DEVELOP PLATINUM PRINTS.**—M. Colon gives a new process for developing platinum prints. Instead of using a hot concentrated solution of oxalate of potash, he makes use of a cold solution of this salt at about ten per cent.; the longer the exposure the less concentration. The impression should be carried rather further than with the hot developer; the paper may be exposed to damp air without danger. It is necessary to use a fresh quantity of the developer for each print, otherwise a disagree-

able greenish-blue tone is obtained. After development, wash in water acidulated with chlorhydric acid, then in pure water as in the ordinary method.

M. Colon shows two platinum prints made from the same negative; one developed cold, is strong, with the whites very pure whilst the other, developed hot, has a uniform gray tone.—*Bulletin Belge*.

**NEW EXPERIMENTS WITH THE HYDROQUININE DEVELOPER.**—At the last meeting of the London Photographic Society, M. K. Dankin, made known the result of his new experiments with hydroquinine as a developing agent for transparent plates to be used for projecting images on the screen. He makes two solutions, A and B. The first contains hydroquinone, 4 grammes (62 grains); bisulphite of potash, 15 grammes (4 drachms), and water 240 cubic centimetres (8 fluidounces). The solution B contains carbonate of soda, 150 grammes (4 Troy ounces, 6 drachms); water, 1200 cubic centimeters (40 fluidounces 6 drachms). To operate, take one part of A and three parts of B. The development is slow; an average of about thirty minutes; but the shadows are very clear. The use of bisulphite of potash instead of the corresponding salt with a soda base, prevents the production of a greenish-yellow tint on plates that have been a little overexposed. After having treated forty-eight plates the bath was hardly colored; it seems that it may be kept for a long time.—DR. PHIPSON in the *Paris Moniteur*.

*Anthony's Bulletin* recommends Mr. G. G. Rockwood's "Triplex" portrait as "A departure from the stereotyped form" of picture and gives a photo example as its embellishment. The "Triplex" grows in favor every week.

THE English company which tried to gull the public with "photographs in natural colors," has gone into liquidation. History repeated again.

OUR foreign contemporaries, in their reviews of 1887, consider that year "a remarkably rich one for our art."

## Editor's Table.

A GOOD WORD FOR AMERICAN CAMERAS FROM ENGLAND.—The Blair Camera Co., of Boston, U. S. A., have sent us for inspection a camera with double backs and tripod, of their manufacture. The camera is beautifully made with extension bellows, rising and falling front, reversible frame, etc. The whole arrangement is as "tricky" as the Company's apparatus generally. We are much surprised at the price, \$24.00 (about £5). The whole is put into a case which will admit of carrying several double backs, a good stock of plates, and the tripod.

The tripod is an excellently made piece of apparatus, and is rigidity itself. The camera is made of the best selected woods, and shuts up into a very small space. We do not know if these cameras are on sale in this country, but certainly, if all the work the Blair Camera Co. turn out will bear comparison with the camera before us, we can but compliment them upon their excellent workmanship.—*The Amateur Photographer*, (London.)

*Photographic Mosaics*: an Annual Record of Photographic Progress. Edited by Edward L. Wilson, New York. Twenty-fourth year.

This little work contains a number of eminently practical contributions from workers in photography. A reproduction of the table of contents would be the only practicable way of giving a good idea of its scope. Suffice it to say that it is emphatically one of the books that every photographer should have, as there will be no one, who practices the art intelligently, that will not derive both entertainment and instruction from the monographs here collected by the well known photographic editor. The Mosstype frontispieces and portrait of the editor add to the appearance of the book materially.—*Scientific American*.

VIEWS OF RAILROAD TRAINS IN MOTION.—Mr. WILL H. MOUREY, operator for Miss K. Beatty, Milford, Mass., has shown a great deal of skill and industry in making some excellent views of moving trains, copies of which we have. The amount of thought put in his work by Mr. Mourey may be judged of by what he says:

"The views were all made with a portrait lens with the back lens taken out. I worked from May until the latter part of August before I was

successful. My tripod weighed about 150 pounds. It was made of 3 x 4 joist. The distance from the track was 2 feet. I used a drop shutter of my own make 15 inches long. Opening in centre 2½ inches. I used four rubber bands doubled, stretched 8 inches. So you see the exposure was very short. The train with the smoke I sent you first was the last one I made. The excitement and being out in the sun was too much for me, I was sick for several weeks after. I think, although I never tried it, that instantaneous views can be made with a single lens, with as much success, if not better, than with a combination. I am going to try it and will report what success I have."

The view of "Old 211" rattling along at fifty miles an hour amid dust and smoke, is very effective and creditable.

KIND words have come in to us more plentifully during the past sixty days than ever before—from all quarters. They make our work easier and pleasanter. We give a few examples:

"I am fully convinced your magazine is the best of its class. I never saw a finer collection of artistic and beautifully executed illustrations than those given with your 1887 volume." CHAS. A. PLUMER, Boston, Mass.

"Being a country photographer I should indeed feel isolated but for the bi-weekly visits of your magazine. I hope to be a life-time reader of it." H. A. CUDDING, Bolivar, N. Y.

"I have tried hard to find some fault with *Quarter Century* but am utterly unable to do so." Dr. J. R. HAYES, Indianapolis, Ind.

"The PHILADELPHIA PHOTOGRAPHER is a fortnightly journal now in its twenty-fifth year, and is edited by an enthusiastic and progressive advocate of photography. We have no hesitation in pronouncing it the most valuable and helpful photographic paper published."—*Fremont Journal*.

I HAVE read Burnet's *Art Essays* with a great deal of pleasure as well as profit.

I never thought so much practical information could be boiled down to so small a volume.

I have a collection of art studies that cost me from \$25.00 to \$50.00 per volume, with about three thousand studies from the masters of nearly all art schools in the world; but for prac-

tical value I consider Burnet's *Art Essays* one of the best of my collection. This is the simple truth. Very truly yours, H. McMICHAEL, Buffalo, N. Y.

THE descriptive, illustrated catalogue of Mr. A. D. FISK, 17 Murray st., New York, is, in some particulars, the most original and complete one we have seen. It contains about 100 pages of the size of this magazine, not of descriptions and cuts of frames, mouldings, accessories, and draperies, but mostly of apparatus. We discover more new things in it than we have seen in any other catalogue. Mr. Fisk starts out with "it is the safest policy to buy only such as are best suited for perfect results," as against the "toys," and his catalogue embodies only "the best." Mr. Fisk is one of the most intelligent and reliable dealers in our city, and we are always glad to commend him.

VIEWS OF NEW ORLEANS.—Mr. W. P. ENO one of our New York amateur friends now sojourning in the Crescent City has favored us with a batch of 5 x 8 views of very superior quality. Mr. Eno not only has great success technically, but he has the artistic sense which enables him to choose and compose the most æsthetic of what comes before his camera. Some of his live oak trees in the old "dueling ground" are very well taken, and his interiors, gardens, and general landscape and canal views are in every sense fine. But where Mr. Eno excels is in his views of the quaint old houses and homesteads. His choice of view and time of day is always capital. The whole series is interesting and valuable.

A PAINFUL ACCIDENT.—We regret to learn that our esteemed contributor, W. H. WALMSLEY, Esq., of Philadelphia, broke his left wrist by falling upon the icy pavement on February 19th. His suffering was very great, but he writes us he will soon be able to give us the first instalment of his articles on Micro-photography. We wish him a speedy recovery.

AN UNPRECEDENTED PHOTOGRAPHIC FEAT.—At the Press Club banquet, February 17th, an unusual photographic feat was successfully accomplished by the editor of the *Photographic Times*, Mr. W. I. LINCOLN ADAMS, assisted by Prof. CHARLES EHRMANN, his associate editor. By the use of an unusual quantity of Carbutt's magnesium "flash light" compound, and Cramer's rapid dry plate, and the Morrison wide-angle lenses and apparatus, furnished for the

occasion by the Scovill Manufacturing Co., Mr. Adams was enabled to successfully photograph the immense dining saloon of Delmonico's, filled with the feasting journalists. The portraits of all are excellent. The particulars of this last method of photography were published in the *Sunday World* of January 29th, when there appeared a two-column article on the subject by an expert.

"Some Recent Advances in Photography" was the subject of an admirable lecture by Mr. FRED. E. IVES on February 27th at the Franklin Institute. We hope to give our readers the best of it.

WANTED.—The number of this magazine for February 6, 1886. Ten copies are desired, and two recent copies will be given per copy, or *Photographic Mosaics* 1888.

A CAUTION.—Read Mr. T. B. CLARK'S communication in specialties and save being victimized by a swindler.

*Mosaics* IN ENGLAND.—"We would call *Mosaics* a book of small nuts, every one containing a kernel."—*Amateur Photographer* (London.)

THE popular veteran, Mr. A. HESLER, has some nice things said about him in the *Chicago Illustrated Century*. Among other things, that he is "always abreast of the leaders."

THE BARDWELL FUND.—Where are our *generous* ones, that this fund is so neglected? We have not only received \$5.00 for this fund from Mrs. C. H. Codman, of Boston, but a very warm personal commendation of it. She said, "it would not lag so if Mr. Codman was alive."

A FIRE in Buffalo caused ex-secretary Michal some loss recently. He says, "I made two sittings of a baby after the fire broke out and then ran and helped push my instruments into the front room and put out the fire." Just like him. He knew the baby might die, and then the parents —

HIAWATHA.—Our paper on this prize topic in our last issue seems to be very highly appreciated. One correspondent asks, "What size must the plates be?" We believe there is no rule as to this. An 8 x 10 is very likely to excel a 20 x 24.

MR. WM. KURTZ, New York, is preparing a fine picture for one of our future numbers.

MONS. LEON FAVRE, 236 West 44th st., New York, produces some of the most exquisite things possible by means of our art. His tiny burnt-in enamels, plain and in color; his carbon transfers to gold and silver watch cases, and his enamel pictures are simply exquisite. Mons. Favre is a veteran photographer of great skill, and is content to devote his life to the production of gems, rather than to grosses of large work.

FIRE! Just as we had printed our last number we received notice of a disastrous fire in a branch of the great factory of the Eastman Dry Plate and Film Co., (Feb. 10th). Since then we have received the following points:

The interruption of business will be short. The fire originated in the third or fourth stories of the west building, in which were situated the paper coating plant and enlarging departments, and spread to the 4th story of the east building, in which the manufacture of gelatine skins was carried on. These three floors were pretty much destroyed by fire and both buildings drenched with water. It being a slack time with the building trades and easy to obtain plenty of workmen, we are informed that the buildings can be repaired in less than three weeks. During this time an entire new plant of machinery, which had been started several months ago for a new factory, will be completed and set up ready for operation. The emulsion rooms being damaged only by water, are already running again. A full supply of raw paper and gelatine being at hand, no detention will be suffered on that score. Mr. Eastman writes:

"We therefore confidently expect to be in full running shape by March 15th, with a new plant of nearly three times the capacity of the old, which will enable us in a short time to fill all back orders for bromide paper, American films, negative paper, and transferotype paper.

In the meantime, with goods saved from damage by water, stock in the hands of the Scovill Manufacturing Co., and the dealers in all parts of the country, we believe that all immediate demands for our paper can be supplied.

Our apparatus factories being separate from our general factory, were not affected by the fire, and business in this line will go on as usual. The enlarging department will be reorganized as soon as possible, and we may be able to get it running by March 1st.

Our London branch having an unusually heavy stock in anticipation of spring trade, will suffer no interruption of business.

The "Blair" bright-bordered insets should be read by all.

*Photographic Mosaics* IN ENGLAND.—Of our annual, the English *Photographic World* says: "This ever welcome annual repays perusal. Many useful hints and wrinkles are to be found in its pages. It should meet with a large sale in England." The *World* also reprints Mr. Bachrach's article entire.

A WESTERN subscriber puts it thus: "Our city is taking on airs. We have electric lights, motor roads, basalt-block streets, concrete pavements, and a gallery making cabinets at 99 cents per dozen."

A SPLENDID PUBLICATION.—We have received the first number of the new publication *Chronik für vielfältigende Kunst*—*Chronicle of the Graphic Arts*, to which we have already called attention. It is published in Vienna and is, of course, in the German language. It is printed on excellent paper, large quarto size. One of the leading papers is on the study of "Historic Art" by Herr Max Lehrs. Its reviews of new books with illustrations are very complete and enjoyable. A supplement with lined pages, accompanies the number, on "Holbein's Madonna des Bürgermeister's Meyer," by C. De von Lut-zow, with two large illustrations.

MR. C. W. DERSTINE, Lewistown, Pa., has favored us with a series of excellent cabinet views which exhibit a great feeling for art. In his letter accompanying them he says: "Although cabinets are made at 99 cents per dozen, I maintain my price at \$4.50 and not many of my old customers have left me." Therein is his triumph. He receives enough for his work to pay him for the time needed to study and improve, and for that spent in making pictures as distinguished from mere photographs. Such as "A Promenade with Papa," "The Coasting Quartette," (very spirited and full of "go,") the "Goat-team," "My Employees," and "Meditation," are a credit to any one. Mr. Derstine thinks and executes capitally. The picture of three dogs—"Noses up"—is also a very creditable picture. Mr. Derstine is a student of Burnet.

MR. J. F. RYDER, Cleveland, sends us some amusing "Notes of the Brush," which were published in the *Leader*. Mr. Ryder's art galleries are the most extensive and popular in Ohio, and the resort of the best people.

Ex-SEC. H. S. BELLSMITH is now on the Pacific Coast demonstrating the various processes of the Eastman Dry Plate and Film Co.

THE Philadelphia Card Manufacturing Co., Limited, on the 17th day of 2d month (February), 1888, by a vote of a majority in number and value of interest determined to dissolve. The undersigned were elected liquidating Trustees to wind up the concern and distribute the net assets thereof among the members and others interested.

All persons having claims against said Association will present them, and those indebted will pay George S. Garrett, Edward L. South, George L. Pennock, Lansdowne, Delaware Co., Pa., or their Attorney, A. Lewis Smith, 112 S. Fourth st., Philadelphia, Pa.

The above from the Philadelphia *North American*, advertises one more failure to supply a first-class quality of cardboard to photographers by means predicted and proven impossible. The survival of the fittest here holds good.

PROF. KARL KLAUSER the veteran amateur of Farmington, Conn., received the first prize (\$15) for photographs of "Home Surroundings" from the *American Gardner's Journal*. We congratulate him.

*Mosaics* IN ENGLAND.—Our well-known correspondent, T. C. HEPWORTH, Esq., editor of the *Camera* says: "Our esteemed contributor, Dr. E. L. Wilson, has sent us a copy of this useful, and beautifully printed annual. While it partakes of the character of our English annuals, it is most interesting as a record of progress of our photographic brethren across the Atlantic. It is full of excellent and thoughtful articles upon varied subjects, and a notable feature in it is, that it deals largely with the art side of photography."

"In an excellent preface by Dr. Wilson, the opinions of several of our English writers are embodied, and kindly acknowledged, and we are pleased to see among them some quotations from our pages. The little volume is adorned with three most excellent specimens of Moss type, including a portrait of Dr. Wilson, who looks as if there were many years of useful work before him. We take this opportunity of wishing him a Happy New Year, and many of them."

MR. FRANK THOMAS, the veteran, Springfield, Mo., writes, "I can't do without the PHILADELPHIA PHOTOGRAPHER and wont try to. A man might as well be in China as to be without your good photographic journal."

A VETERAN series will probably follow the prize-takers series. The second splendid quartette of the latter will be in our early April issue.

MESSRS. A. B. PAINE & Co., Fort Scott, Kas., have just issued their third catalogue. It is carefully made up; of royal octavo size: 205 pages and supplemented by several pages of "Simple Methods and Practical Suggestions."

NEW MEXICO VIEWS AND GROUPS.—Some of the best of these we ever saw, came to us from Mr. W. CAL BROWN, Albuquerque, New Mexico. Not only are the views carefully selected, but Mr. Brown has the knack of securing pictures of the people which are rare. The old Moqui blanket weaver is particularly fine.

TRAINS at high speed also came at "fifty miles an hour" from Mr. W. F. RAMBO, Loveland, Ohio. Not only are they excellent as "sudden" pictures, but our artist has chosen a lovely, picturesque spot for his camera. The trees, the curve in the track and even the "braced up" telegraph poles all supply elements of harmony and unity to his pictures, which make them superior as well as picturesque.

*Photographic Mosaics* IN THE WEST.—Mr. Wilson, the enterprising editor of the PHILADELPHIA PHOTOGRAPHER, has for many years published an "annual" comprising the history and progress of the photographic art during the preceding year. The annual *Mosaics* for 1888 is, as an amateur said a few days ago, "the best thing of the kind I have ever seen." It is full of valuable information and should be in every photographer's library. It contains about fifty contributions from practical photographers, and as everything in the book has passed under the careful eye of the editor, the matter may be relied upon. Among the articles are chloride of gold—how to make it; how to produce fine cloud effects with stump and crayon; development and exposure; time; printing points; dark-room practice; labelling negatives; how to copy daguerrotypes; manipulating bromide paper; washing negatives; reducing overprinted prints; and, notes from a veteran. The volume contains three beautiful illustrations, one a fine portrait of the editor.—*Fremont Journal*.

"I am sorry I did not possess *Quarter Century* as soon as it was issued." WM. HOWELL, Newark, N. J.

OUR SOUVENIR FOR 1888.—If you have not received it or desire duplicate copies for yourself and friends, kindly write us for the same. Freely given to all.

*Mosaics* 1888, second edition, still holds out, but orders should fall in soon.

BURNET REVIVES THE OLD LOVE.—Mr. E. H. BERLIN, of Blairsville, Pa., writing for Burnet, says: "I read the 'Essays on Education of the Eye' several years ago in the PHILADELPHIA PHOTOGRAPHER, and have often wished I could get it in a single volume. I will venture to say, if the fraternity knew the help contained in this work, your edition of 500 would not supply one-half the demand."

"YOUR *Quarter Century in Photography* is certainly complete." MARSHALL BROS., Cazenovia, N. Y.

MRS. EUNICE N. LOCKWOOD, Ripon, Wis., has sent us a copy of her "Fifth Anniversary Circular," which is given to her patrons as a souvenir for 1888. It is full of noble sentiment and does her great credit. She alludes to the first convention she attended (Cleveland, 1870). We well remember seeing her there. She still gets \$4.00 a dozen for cabinets. We congratulate her on all.

CHEMICALS FOR 1888.—Messrs. CHAS. COOPER & Co., 194 Worth st., New York, have sent us their February prices for chemicals. Nearly six hundred articles are named on this wonderful list—about everything the photographer can wish for from A to Z. No word of commendation is needed by this honored house from us. Their productions stand higher than any in the market. Their immense laboratory at Newark, N. J., is a wonder. They also refine photographers' wastes and seem to obtain better returns than any one else. It is, besides, a comfort and a pleasure to deal with a firm of such staunch integrity as C. C. & Co.

CORRECTIONS.—In Dr. Field's article on Photomicrography the following corrections should be noted!

1st column 1st line, read infinitismals for "infinitesimal."

2d column 20th line, read distortion for "distribution."

3d column 6th line, read low for "long."

4th column 2d line, read light tight for "bright light."

6th column 25th line, read tube for "bellows."

The proof sent to the author did not reach in time for correction.

THE *Ferrotypers' Guide* (eighth thousand) has just been revised and reprinted. It is the best authority on this favorite picture. Price 75 cents, post paid. It is full of hints useful anywhere.

BROOKLYN ACADEMY OF PHOTOGRAPHY.—Officers, 1888-1889.

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*1st Vice-President*.—Frank La Manna.

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VOLUNTEERS WANTED.—We shall be glad at any time to have our readers volunteer negatives for "Our Picture." For an albumen print picture we require six negatives of uniform quality and preferably all the same subject. Please do not be backward but send us proofs of the best you can do.

GRAY'S Periscope lenses are winning their way surely and satisfactorily. Mr. Gray informs us that the illumination of his present productions is double that of the old and that they are all achromatic. Mr. Gray is the original inventor of the Vest camera and is located at 259 West 27th st., New York.

A TRUE STUDENT.—Mr. WILL H. MOUREY, whose remarkable instantaneous views are noticed elsewhere, writes: "For a number of years Wilson's *Photographics* has been my companion. Burnet's *Art Essays* was a Christmas present to me. I value it very much. It is just the book for one who wants to make art a study."

*Quarter Century in Photography*.—Wilson's *Quarter Century in Photography*, which has already reached its second edition, is by long odds the most complete and instructive handbook of photography ever issued in the English language, and is of more practical value to the amateur and professional photographer than any other work on the subject ever published. It is comprehensively written, has an elaborate index, contains 386 illustrations, and 528 pages of reading matter, from which something new can at any time be gleaned.

A partial list of the illustrations and a specimen page of the index will be sent on application to the author and publisher of the work, Mr. Edward L. Wilson, 853 Broadway, New York.—*Long Island Record*.

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. ~~We~~ We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

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We are informed that a positive guarantee of genuineness, which purchasers may rely upon, is the monogram S. M. Co., lithographed on cover of can, and also pasted on end of outside wrapper. Get the best.

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### TO PHOTOGRAPHERS.

We take pleasure in announcing that Mr. HENRY G. THOMPSON, formerly of the firm of Douglass & Thompson, and late Vice-President of the corporation of N. C. Thayer & Co., will assume charge of our Photographic Stock Department, at 208 State St., Chicago, after March 1st, where a full line of photographers specialties of every description will be kept on hand. At our Philadelphia branch the same assortment will be carried. Soliciting the continuance of your esteemed patronage, we are

THE BLAIR CAMERA CO.,  
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Get Wilson's "Quarter Century  
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**LOOK OUT FOR THE SWINDLER.**—I write you this letter enclosing a small photograph of one who represents himself as J. B. Hall. Your readers of PHILADELPHIA PHOTOGRAPHER no doubt would be benefited in having his face about in some "handy place," when he makes his appearance. The original of this small photo is a "deceiving fraud," his plan of operation is to announce himself willing to sell tickets, "special rate tickets," printed something after the style and manner of those issued by A. N. Hardy, published in the PHILADELPHIA PHOTOGRAPHER of December 3, 1887, with changes to work favorably to his plan of operations. After having ingratiated himself with the photographer of good reputation in a town, he starts out selling these tickets, making promises and contracts not contained on the ticket, abusing the confidence the public has in the photographer he represents, manages to dispose of quite a large number of these tickets, collecting his commission, he then skips the town leaving the photographer to stand the loss effected by his lying rascality. Photographers should be on the lookout for this "sleek rascal" and accord him a warm reception.

Knowing you publish the PHILADELPHIA PHOTOGRAPHER for the benefit of your many readers, and for the protection of them against fraud, I ask you to publish this and I will be responsible for same. Very truly yours,

T. B. CLARK,  
Indiana, Pa.

NEW YORK, February 4, 1888.

MESSRS. GOLDSMITH & MOFFITT,

GENTLEMEN! Your "Preservative" is voted a success here, where for the past few months my printers have put it to severe tests and found it to be all you claimed for it. Next to the dry plate it bids fair to rank as the greatest economizer of labor and material lately introduced to the fraternity, and if its summer record prove equally satisfactory, its praise will have no bounds.

Yours truly  
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One No. 5 Euryscope.

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TO THE AMATEUR.—Send for list describing the Toning and Fixing Combined Compound, the Chloro-bromo. Paper, Higgins's Pat. Duplex Finder, Moreno's Universal Developer, Imperial Negative Reducer, Eagle Rectilinear Lenses.

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WILSON'S *Quarter Century in Photography*; a collection of hints on practical photography, which form a complete text book of the art. By Edward L. Wilson, editor of the PHILADELPHIA PHOTOGRAPHER, and author of Wilson's *Photographics* and *Photographic Mosaics*, published by the author, 853 Broadway, New York.

Mr. Wilson's long experience in the art of which he writes, and his special training as an editor of the leading American magazine devoted to photography, give him special fitness for the preparation of a text book of this kind. A quarter century ago Mr. Wilson entered the business as an employé of Mr. F. Gutekunst, of this city, and a year afterward began the publication of the PHILADELPHIA PHOTOGRAPHER. He has apparently thought of nothing else but photography during the last quarter century, and in this book condenses and puts in good shape all that he has learned on that subject from his own experiments, experience, and study and from the contributions of the most eminent photographers of the world to his magazine. It may be said, without exaggeration, that the resultant book is a library in itself, sufficient to the needs of most photographers. Mr. Wilson is a practical man, and, though he treats the subject in a systematic way, does not overburden it with details that, however interesting to the chemist, are simply confusing to the working photographer. The book is full of useful hints and profusely annotated from the works of other authors. It is also liberally illustrated, and may safely be commended as the best single book for either the amateur or professional photographer that has yet appeared.—*Philadelphia Ledger*.

TO PHOTOGRAPHERS.—Try and you will use the New Sulphite Soda, Cryst. (finest in the market); the Dry Plate Negative and Retouching Varnish; the Eagle Ground Glass Varnish; the Florentine Water Colors.

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MARION & Co., Publishers, London.

The well-known author says, "The object of this work is to give practical instructions in the working of all processes which are in actual everyday use at this date."

The *Amateur Photographer* (London, Feb. 3d) says, "Any matter from the pen of Prof. W. K. Burton (of the Imperial University, Tokio, Japan) deserves and commands attention by all workers in photography. . . . We are sure it (this book) will be their constant reference-book."

Mr. Burton's capital papers in the *Photographic Times* have made him very popular in America, and his book will prove welcome to his many friends here. I have just received (too late for review) an edition for this market. Copies mailed on receipt of price.

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TO PHOTOGRAPHERS.—Now in stock, the new quick Seed plates, sensitometer numbers 24, 25, 26, and 27. Quickest plate and finest printers.

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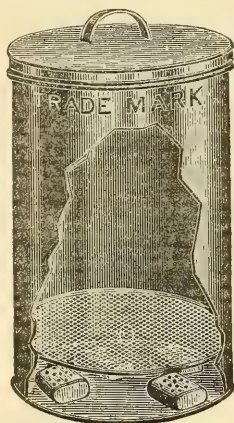
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By a young man as printer or general assistant in a gallery, wages not so much of an object as steady employment. Good references. Address K, Lock-box 263, York, Pa.

By a strictly first-class operator and retoucher in some good gallery, where good salary would be given. The very best of recommendations given. Address S. D. Lane, Petersburg, Va.

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In a first-class gallery as printer and toner by one who is competent to take charge, having worked for some of the best houses in the country. References exchanged. W. H. Charles, 364 Superior st., Cleveland, Ohio.

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Boudoirs or Panels, 5 x 7, . . .	30 "	" " 12 x 14, . .	1 00 "
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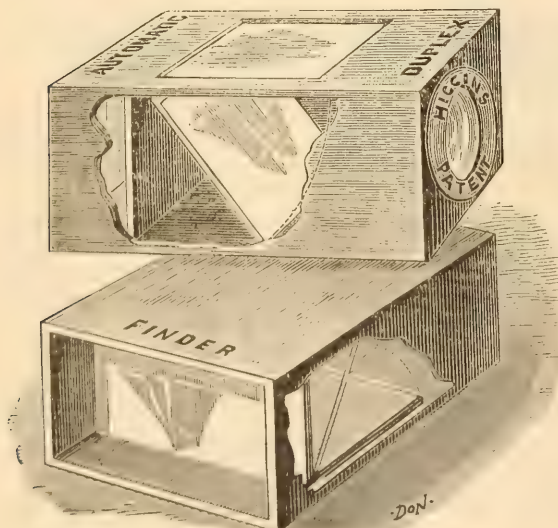
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Every Photographer has constantly felt the want of some means to satisfactorily reduce an **OVER-DEVELOPED OR TOO DENSE NEGATIVE**. The *error* in development naturally inclines to a full or complete one. The exact normal or desired strength it is impossible, in the *dim light of the dark room*, for even the practiced and constant artist of the Gallery or Studio to secure. How much more so with the amateur or occasional operator! For the achievement of this **DESIDERATUM** we have been at an outlay of more than ordinary expense and time, and are now enabled, as the result of long-continued experiments and trials, to furnish an article **RELIABLE AND SATISFACTORY**, and without which one would as soon be as *without his developer*. The ability of being able to *reduce*, in the white light of the open room, a plate, either ever so slightly or even a *cast iron negative*, to what is wanted, is now within the reach of every one. Of its desirability it is needless to speak. With the

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H. O'NEIL.

New York, Jan. 21, 1888.

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DEAR SIR: You are certainly welcome to what I know of your *Imperial Negative Reducer*, and you will surely gather much money and more thanks for introducing it to the Photographic Legions.

Yours truly, FALK.

New York, Jan. 21, 1888.

MR. GEO. MURPHY,

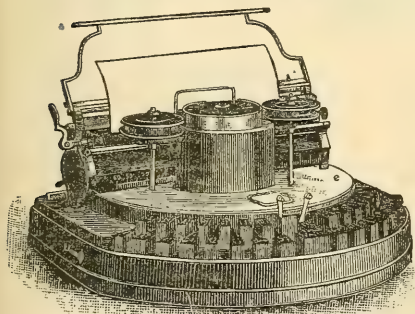
DEAR SIR: I am highly pleased with the very excellent qualities of your Imperial Reducer. It works like a charm, and I do not see how it could be improved. I have used the bottle received from you on quite a number of negatives with uniform success, and I would hardly know how now to be without it.

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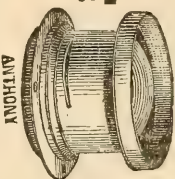
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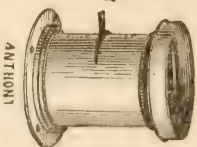
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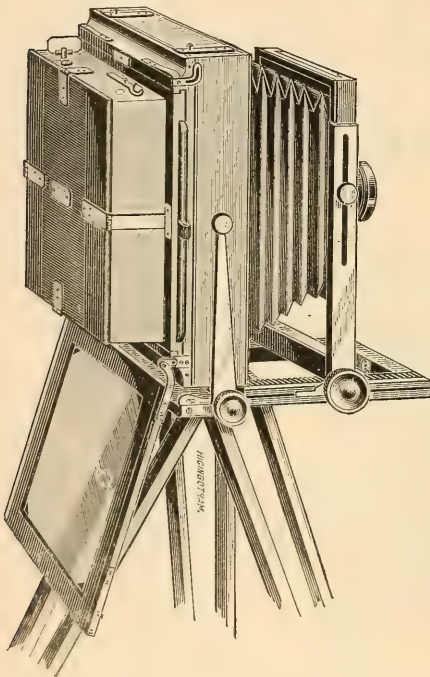
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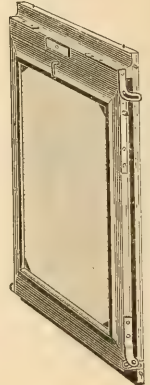
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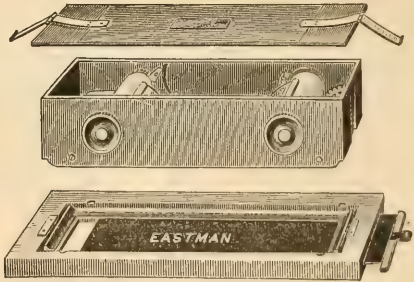
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Cincinnati Jan 1<sup>st</sup> to 1888

My dear Dr Wilson

The Burnet came to hand  
last week. It is full of information  
& instruction. I value it very  
highly - I have the first edition  
you published in 1875. It has been  
my guide. But your new work  
is three books in one. I am  
certain no one can read it  
without being artistically benefited.

Yours J. Landy

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### THOUGHTS SUGGESTED BY "WILSON'S QUARTER CENTURY IN PHOTOGRAPHY."

BY E. K. HOUGH,  
Artist and Photographer,

in the the *Photographic Times*, November 25th, 1887.

I HAVE been much interested lately in reading *Quarter Century*, and feel inclined to make a few comments. The book is before me. I remember well the impression it first gave me. I thought, "What a beautiful volume! Nice enough for any library. The binding is elegant in its simplicity, with its beautiful lettering in pure gold and nothing flashy. If the same good taste has controlled thought, it must be well executed. But what a large book! Can we expect good sense, and live thought, through half a thousand pages? Or is it, like too many photo books, a few meagre scraps of useful information, padded with bulky history, telling what nobody cares to know, and elaborate cautions to avoid what nobody ever thought of doing?"

Mr. Wilson is always saying, "boil down," "concentrate." Hasn't he "reversed on us" this time and "amplified?"

We'll read the preface; that always gives some clue to the author's intention.

Well, the preface is short, pithy, and spirited, quite a biography—the spirit of a lifetime in a nutshell.

Then the list of authorities from A to Z seems enough to start a clycopædia. But, running it over, we notice some of the most valued names that photography has pro-

duced. Men who have for years given the best results of their thought and labor for common good. Generous, noble men, whose names are guarantee for a feast of good things, and the list of "illustrations" confirms it. Three hundred and eighty-six; one for almost every page in the book; what a wealth!

But this is the age of illustration, they say. Never before were pictures used so freely and generously as now, on every subject, by every class, in every kind of business. But a few years ago—within the lifetime of many yet living—the revenues of an empire could not have produced pictures so perfect and abundant as those now thrown about as carelessly as forest leaves in autumn.

And our art of photography is largely the exciting and producing cause. So it is but "rendering unto Cæsar" his own, when books on photography are liberally illustrated; surely, by the light that pictures give we can see better how to make them.

As we run the book through, we notice the good paper, the clear type, the bright pictures, the careful division of subjects, the running commentary of quoted authorities, all methodically arranged like a well-kept garden, each variety in its own bed, and all carefully weeded that no space be wasted by useless product.

Surely, we think, this book must be of value to every one interested in photography. Let us begin to read it systematically:

Chapter I.—The History of Photography.  
Only four pages. No "amplification" of that subject.

Chapter II.—The Theory of Photography.

Less than half a dozen pages.

Chapter III.—Light.

Less than four pages.

Chapter IV.—The Camera.

Only two pages.

Bless me! What is the man thinking of? Concentration! Boiling down! Why, this is hydraulic compression; this is putting the ocean into a gallon jug; this is putting photography entire into a capsule that one can swallow like a quinine pill!

If he is going on like this, what on earth is the book made of? But hold on.

Chapter V, about lenses, has over thirty pages, profusely illustrated. That is right; that is putting the information where it will do most good. For the ignorance of photographers about their lenses is simply incredible.

They don't know how or why lenses are made as the are, nor the differences between them, as portrait, rectilinear, wide-angle, etc. There are scores who could not even give an intelligent explanation of why the image is formed upside down. And yet the lens is the most vital part of their outfit, the part on which their very life (business life) depends, as much as the soldier on his rifle, the musician on his piano, the machinist on his engine.

And although now probably all of these know more about their respective instruments than the average photographer about his lenses. Yet, by studying this chapter, the operator can come to understand the construction and working power of his lenses so thoroughly that he will not have to evade an answer to conceal his ignorance when questioned regarding them. Besides, he will increase his power in using them.

The next chapter is on diaphragms, and ten pages tell a great deal about the use and abuse of those little adjuncts to the lens, and how many a picture has been spoiled by not knowing how and when to use them. It is all useful to the practical worker, and full of ingenious devices clearly explained.

Then we come to a chapter on the construction of the glass house, the sky-light, the operating-room.

Thirty pages crowded with elaborate illustrations, making clear the various forms and methods; so various, that the operator who could not find here some plan to suit, would be hard to please; and any photographer intending to build newly, or reconstruct his old light-room, would, doubtless, save many times the cost of this book by carefully reading this chapter before he began, besides being better satisfied when done.

The succeeding chapter, "Under the Sky-light," is full of good ideas fully illustrated through thirty-six pages; and the photographer must be far advanced indeed who cannot get many new and useful ideas from it; while to the new beginner, or the partially experienced, it is invaluable.

The next chapter, on "The Application of Art Principles," brings us to "the very pulse of the machine," for all the rest counts for nothing without this. The carefully constructed skylight, the beautiful camera, the perfect lens, the complete machinery of curtains, screens, reflectors, backgrounds, and "shadow chambers," are all made for the sole purpose of facilitating the application of art principles to portraiture.

To construct them and not apply art principles in using them, is to misuse and misapply them, as much as to use the carefully constructed rifle of the soldier for a crow-bar; or the beautiful piano of the musician for a manger; or to keep the wonderful machinery of a perfect locomotive always ready, on the track, blowing off steam, but never going anywhere—useless activity. So, making pictures with skylight, camera, and accessories, without the application of art principles, is useless activity, and the more active the more useless, *i. e.*, the greater waste of noble possibilities.

This chapter on Art is as full of good ideas as an egg is of meat, all given upon the highest authority and backed by the strongest reasons. There is one sentence, that, taken as a text, might be elaborated into a volume by itself, and not exhaust the subject. It is this: "The two great main considerations which should occupy the

mind of every photographer are these: *What is the best view he can take of his sitter, and what effect of light and shade will be most becoming to the sitter's countenance? On these two considerations the success of every portrait entirely depends.*"

Acting upon and carrying out these "two considerations" will always bring into play all the photographer's natural ability and acquired knowledge, however great an "artist" he may be.

As the writer says, that sentence "is worthy of being printed in letters of gold and hung where every operator in the land must see it daily."

Art principles applied to indoor and outdoor work are explained, illustrated, and enforced through nearly one hundred of the richest pages in the book; full of suggestion, animation, encouragement, and vital truth. No photographer can read these pages and not straighten up with new resolve to do better work on these lines, at any cost of thought and trouble. They are full of inspiration, and stimulate to new endeavor like mountain air where every step upward stirs the blood and gives new vigor for climbing higher.

Having awakened this desire to do the best work possible, it continues through the last half of the book—over two hundred and fifty pages—to explain the mysteries of the chemicals and negative making, printing, etc., with short explanations of all the new processes, including photo-engraving and the new "color sense" in negatives.

But for the great majority of portrait and view photographers in everyday work, the most interesting and immediately useful section is that on "dry-plate negatives." Nearly a hundred pages, going into all the mysteries and manifold advantages of that wonder in photographic progress, the gelatine dry-plate.

There is much to learn. New chemicals, new processes, new possibilities; new ways of developing, strengthening, reducing, preserving, all explained here, and made as easy as the old ways and far more convenient.

What a treasury of photographic knowledge! How plain, and clear, and easy the path of the new beginner is now, compared to the barren and rugged ways that we had to stumble over in those earlier years; almost without guide or compass we plodded on, often deceived by false directions, misled, mistaken, sometimes swindled, often paying, in our eagerness for all that could be learned, many times the cost of this volume for less valuable information than can be found in any one of these five hundred pages.

We have all heard the old story of the enterprising Western artist who came East and paid \$500 for learning that a drop of nitric acid would keep his ambrotype bath from fogging; and who, immediately on returning home, issued circulars to his neighboring brethren, and sold the secret to ten of them for \$100 each, and all were satisfied.

If all the valuable information in this book regarding dry-plates was held at that rate, the knowledge of photography would be confined to millionaires. But here we have a beautiful book, with the concentrated essence of all that has been discovered or invented in photography for twenty-five years, for less than the price of a dozen cabinets.

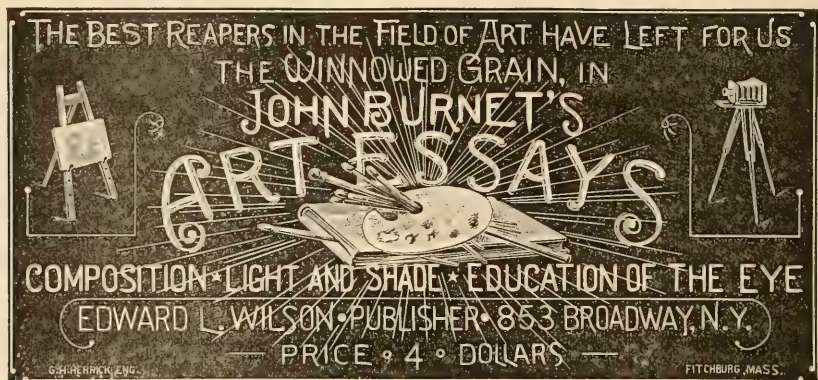
Any ordinary photographer will have made and saved more than the cost of the book before he can read it through, by the knowledge he will acquire at the very beginning.

How any one can hesitate to avail himself of so much valuable information at so little cost, passes comprehension. No wonder they are selling rapidly.

This volume and *Photographics* will be the photographer's standard library; his books of ready reference, his "Inquire-within-for-any-thing-you-want-to-know," his compendium of universal knowledge in photography, and it will be a long time before the progress of the art will make another such book necessary.

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The Second Thousand of this splendid book is now largely in use. "Universally useful" is the general verdict. Sent to any address for \$4.



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For twenty years it has been my personal Art Text-book. It is invaluable, and I give it the highest commendation.

**OPINION OF BURNET'S WORKS BY MR. H. P. ROBINSON.**

*Author of "Pictorial Effect in Photography," "Picture-making by Photography," "The Studio and What to Do in It," etc., and the greatest English Photographer and Artist.*

To EDWARD L. WILSON,

I am glad to see you are publishing reproductions of Burnet's Essays on Art. If photographers really cared for art, which I sometimes doubt, and knew the value of these books, you would sell a large edition. I remember well as a boy, long before I had thought of photography, saving up my pocket money to buy one of these, at that time, expensive books. I chose the one on Composition, that admirable essay, which, with its illustrations, is so clear and convincing, I have always looked upon as the very solid foundation of all I may know of art. The other essays I have read and admired but never possessed, for by the time I could afford to buy them they were out of print and difficult to obtain. I strongly recommend these books to all who want to know what is really sound in art.

Respectfully yours,

H. P. ROBINSON.

**A NOTED ARTIST'S OPINION OF BURNET'S ESSAYS ON ART.**

To W. I. LINCOLN ADAMS,

DEAR SIR: The "Practical Essays on Art" form the safest guide to all students of pictorial arrangement and composition. It is not a book to be placed on the library shelves to be consulted from time to time, but rather one to be studied daily until all the principles it advances have become a part of one's definite knowledge. Read, re-read, analyze, apply, and then return again to this masterly compendium. One's originality is rarely of value unless based on such a sub-structure of principles as are so ably explained. I would place this in the hands of every amateur and professional artist and photographer in the country, if I could. I hope, since that is impossible, that all students will save their pennies until they can own the book, and thereafter truly own it by becoming thoroughly familiar with its contents. Delight in possession of this sort no money can express. With best wishes for the success of this revival, I remain,

Respectfully yours,

NEW YORK CITY, December 24, 1887.

J. WELLS CHAMPNEY.

**MR. ROOT'S OPINION OF BURNET'S ESSAYS ON ART.**

You certainly deserve great credit for resurrecting this valuable and much needed work, and success is sure to come.

ENOCH ROOT, Chicago.

It is handsomely bound. \$100 cannot purchase a copy of the original works.

As a help to photographers in making positions it cannot be overestimated.

It teaches the practical elements of art entire, and supplies the best examples for study.

Owing to the fact that Mr. Burnet's works have long been out of print, few are privileged to enjoy its advantages. I have reprinted and republished the original works by means of a photo-lithographic process, thus securing all the charms of the original drawings, and now offer these three books in one to the art students of America.

It is a great success. Read the opinions of its buyers in this Magazine.

**EDWARD L. WILSON, Photo. Publisher, 853 Broadway, N. Y.**

1888.

TWENTY-FIFTH YEAR.

1888.

# THE PHILADELPHIA PHOTOGRAPHER.

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It is issued in the interest of its subscribers by its editor, owner, and publisher.

It shows increased excellence in its embellishments and illustrations, and they are more numerous than ever. No magazine in the world publishes so many splendidly illustrated articles, or gives with each issue such a useful photographic study.

Every process, improvement, and style known to the world is quickly and splendidly put before the readers of the PHILADELPHIA PHOTOGRAPHER.

The prize-takers at the Chicago Convention will be represented by many reproductions from their exhibition collection. About fifty of the prize pictures will appear—the editor's choice. The magnificent collection thus secured to every subscriber was never equalled.

Notes, formulæ, and practical points by the prize-takers and their operators will accompany the pictures. The series began in January.

A new staff of practical writers, added to the old favorites, contribute a condensed, yet thorough series of papers. The best articles from our exchanges and notes are given from London, France, Germany, Italy, Russia, Holland, Spain, Australia, India, and Egypt. The staff of American contributors has been greatly augmented also, and presents some grand new features. Early in the year Dr. J. J. Higgins of this city, will contribute an analytical and exhaustive monograph running through three or four numbers, on the "Circle of Confusion" as present in the use of photographic lenses. It will be exceedingly interesting and valuable, aside from being the only complete treatise on the subject. No expense will be spared in illustrating it elaborately.

Several entire treatises (books) will appear on special branches of work. Mr. W. H. Walmsley will contribute interesting and valuable illustrated papers on Photo-Micrography.

Profuse illustrations; charming art-papers; superb studies.

## THE PHILADELPHIA PHOTOGRAPHER CONTAINS

**JANUARY 7, 1888:** For the New Year—What? Many Mites from Foreign Minds. Economy in the Dark-Rooms by H. C. STANDAGE. Linotype; A New Photographic Printing Process, by Prof. J. HUSNIK. Where Go, What Take, and some other matters, by W. ADCOCK. Queries, Questions, and Conundrums. Prize Points. Alum in the Hyposulphite Bath, by L. NORTON. Photo-Sculpture, by M. LAZZARD. Copper-Plate Photo-Engraving. Our Picture. Puzzled Photographers. Something New—Transferotypes, by G. HANMER CROUGHTON. Notes from Paris, by F. H. W. An Open Letter, by A. E. DUMBLE. Society Gossip. The World's Photography Focused. Practical Points from the Studios. Facts and Fancies. The Open Corner. Editor's Table. OUR PICTURE.—"German Peasant Studies." Negatives by OSCAR SUCK, Carlsruhe.

**JANUARY 21, 1888:** Burnet's Art Essays and their Use to Photographers, by E. K. HOUGH. The Texas Association. Why Have Some Negatives Thin Edges? Combinations of Silver Chloride with Other Metallic Chlorides, by M. CAREY LEA. How About Our Work Now? by ARM. DE SILVA. The Open Corner. Some Light on the Subject. Mosaicsiana. Our Picture. Lead Strengthening, by EUGENE HINLY. Developing Properties of the Double Salt of Potochloride of Copper and Chl ride of Ammonium. Facts and Fancies. A Quarter Century in Photography, by LUKE SHARP. Experience a Dear School, by THOMAS PRAY, JR. Notes from London, by T. C. HEFORTH. Society Gossip. The World's Photography Focused. Pertaining to the P. A. of A. Editor's Table. OUR PICTURE.—"Carolling." By H. P. ROBINSON, Tunbridge, Wells, England.

**FEBRUARY 4, 1888:** Prepare for Art. The Use of Hydroxylamine, by Dr. J. M. EDER. The German Journals. Mr. Obernetter's Process for Preparing Gelatine Emulsion. Practical Points from the Studios. Photo-Micrography, by A. G. FIELD, M.D., LL.B., Des Moines, Iowa. British Currency, by C. C. VEVERS. Facts and Fancies. The Ether-Oxygen Lime Light, by F. E. IVES. Our Picture. The World's Photography Focused. Pictures of Children. Burnet's Art Essays, by ENOCH ROOT. Society Gossip. Pertaining to the P. A. of A. Editor's Table. (Splendid Engravings.) OUR PICTURE.—"The Fairy Dance" From Negatives, with a Suter Lens, by G. CRAMER, St. Louis, Mo.

**FEBRUARY 18, 1888:** A Model Child Portrait. Burnet's Essays on Art, by H. P. ROBINSON. The Open Corner. How to Look at Pictures, with 7 Illustrations of Munkacsy's "Christ on Calvary" The Metric System and its Advantages in Photography, by JAMES H. STEEBINS, JR., S.B., M.S. Filtered from The Year Books. The World's Photography Focused. The Hiawatha Competition for the Blair Cup, with 4 Engraved Studies. Art for Photographers, by XANTHUS SMITH. Our Picture. Society Gossip. Editor's Table. OUR PICTURE.—"Ready for Action." Negative and Prints by F. GUTKUNST, Philadelphia.

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## ANNOUNCEMENT

TO MEET THE WANTS of our retail customers we have arranged to open a complete **Photographic Stock Department** in connection with our business at our Branch Houses, and, in order to cater to the wants of photographers generally, we have enlarged and remodelled our warerooms at **208 State St., Chicago**, and taken a new store, especially fitted up for our use, at **918 Arch St., Philadelphia**.

ASIDE FROM GOODS of our own manufacture, we now have *en route*, direct from the factories, a complete and full line of all staples in use by the photographer, including

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TO AID US in carrying out our plans, equipped with all the advantage, experience, energy, and a familiarity with the trade can give, we have engaged the services of HENRY G. THOMPSON, formerly of the firm of Douglass & Thompson, and late Vice-President of the corporation of N. C. Thayer & Co., who will assume charge, March 1st, as manager of our Photographic Stock Department in Chicago.

OUR PHILADELPHIA STORE will be in equally competent hands, and our travelling salesmen are men well known to the fraternity for ability to care for the wants of their customers.

WE WANT A SHARE of your esteemed patronage, and will exert all just efforts to gain and retain the same.

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MARCH 17, 1888.

Number 318.

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Photographer.

AN ILLUSTRATED SEMI-MONTHLY JOURNAL,  
DEVOTED TO PHOTOGRAPHY.

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OUR PICTURE.—"Portrait Study." By OSCAR SUCK, Carlsruhe.  
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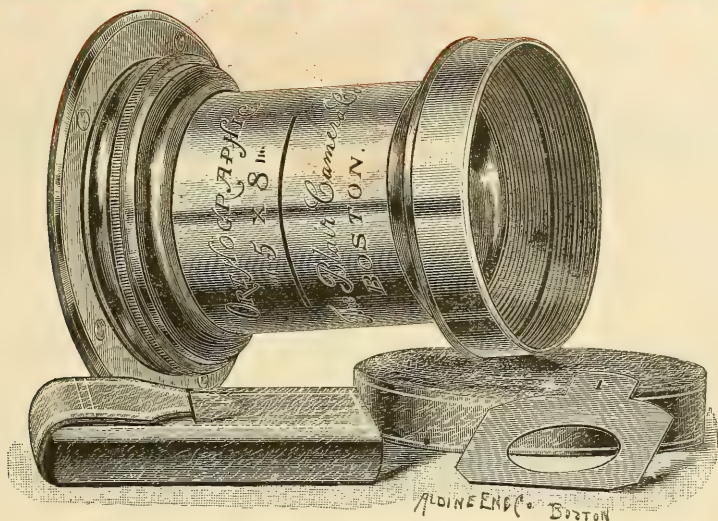
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2	4 x 5	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$	1 "	5 $\frac{7}{8}$ "	6 $\frac{1}{4}$ "	20.00
3	5 x 8	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$	1 $\frac{1}{4}$ "	7 $\frac{1}{2}$ "	8 "	30.00
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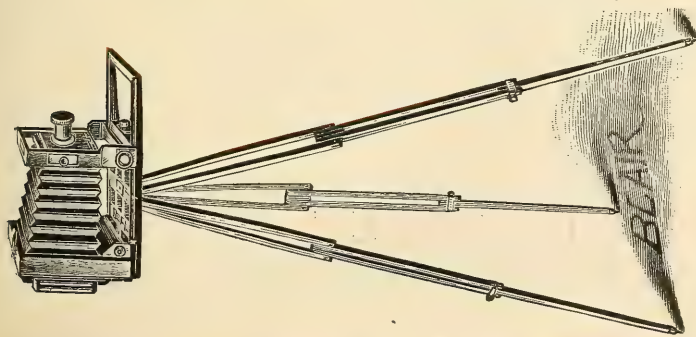
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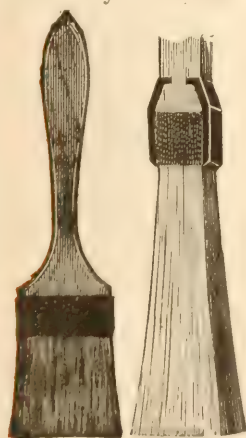

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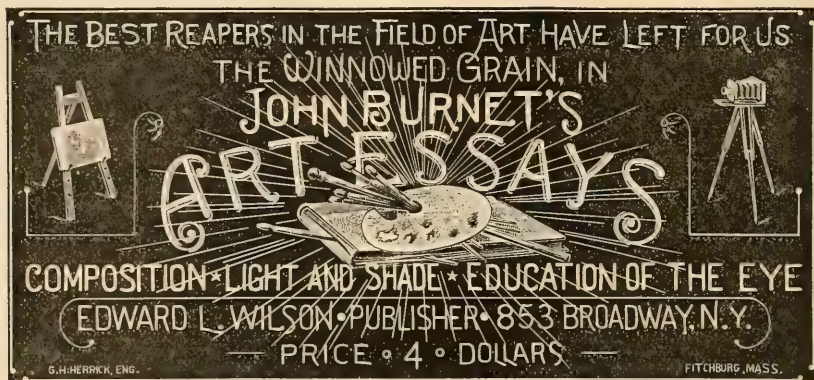
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Respectfully yours,

H. P. ROBINSON.

**A NOTED ARTIST'S OPINION OF BURNET'S ESSAYS ON ART.**

TO W. I. LINCOLN ADAMS,

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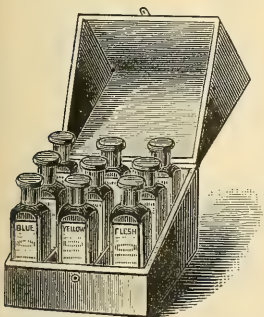
The Burnet came to hand last week. It is full of information & instruction. I value it very highly - I have the first edition you published in 1875. It has been my guide. But your new work is three books in one. I am certain no one can read it with being artistically benefited.

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N.P.A.  
DRESDEN.

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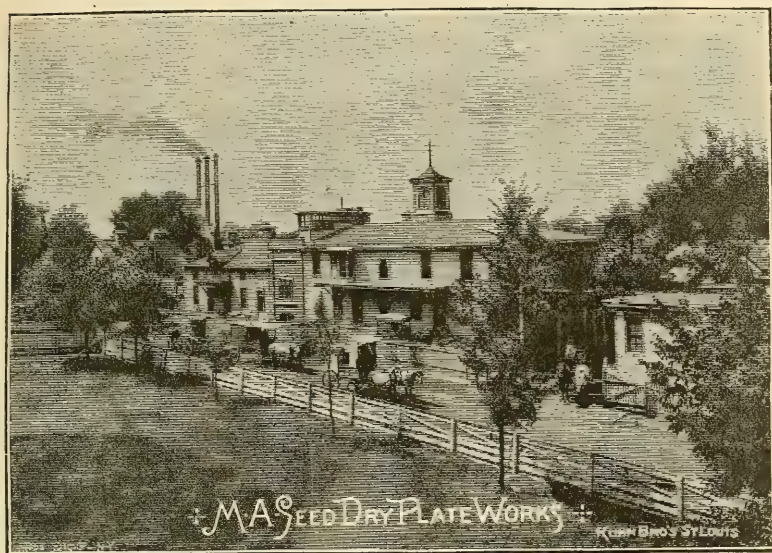
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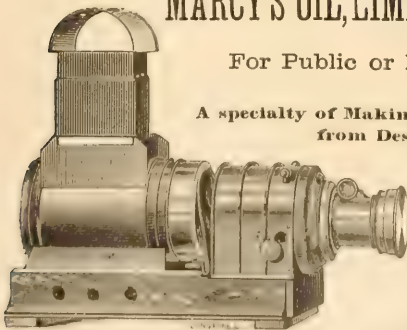
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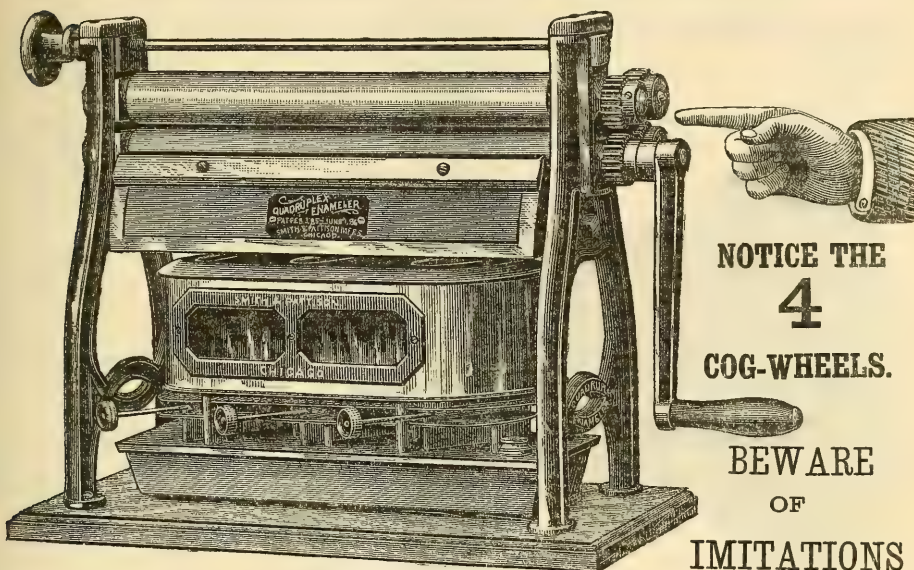
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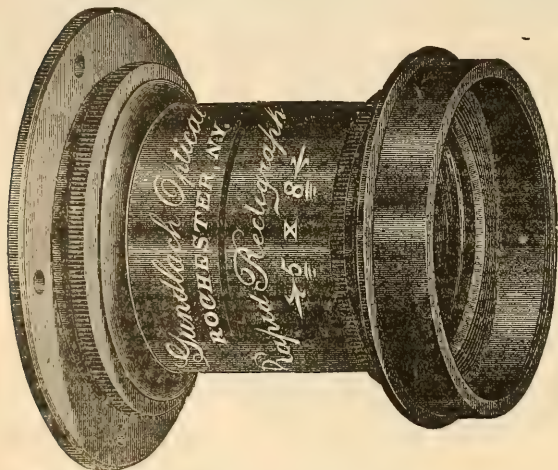
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EDITED BY EDWARD L. WILSON.

Vol. XXV.

MARCH 17, 1888.

No. 318.

WALLACE GOOLD LEVISON

ON

**THE ABSOLUTE MEASUREMENT  
OF THE SHUTTER SPEED IN IN-  
STANTANEOUS PHOTOGRAPHIC  
EXPOSURES.\***

AN accurate yet simple method for determining the duration of instantaneous exposures has long been desired by those interested in photography, especially in its astronomical applications, and an experience of this necessity has led me to contrive a method which may perhaps become available. In adopting as a measure the vibrations of a tuning-fork it resembles the method of Mr. Albert Londe,† from which it differs in dispensing with a standard source of light, and in avoiding the complications arising from the individual equation of lenses, by determining directly the speed, and rate of translation of the shutter, and therefrom the shutter exposure, which is a positive element of quick exposures.

By a combination of the two methods it would appear that the essential elements of an instantaneous exposure may be quite accurately determined; for while Londe's method deals with the lens, mine more particularly relates to the shutter. Certain

\* From papers read before the Brooklyn Academy of Photography, Dec. 14, 1887, the N. Y. Academy of Sciences, Jan. 16, 1888, and the American Astronomical Soc., Jan. 24, 1888.

† Albert Londe, *La Nature*, May 19 and 24, 1887.

principles which appear to be common to a large variety of shutters have been established by the first application of the method to the ordinary guillotine shutter, which term, borrowed from the French, is herein used to designate any sliding shutter actuated by gravitation or a spring, whether it move downward, sideways, or upward.

FIG. 1.



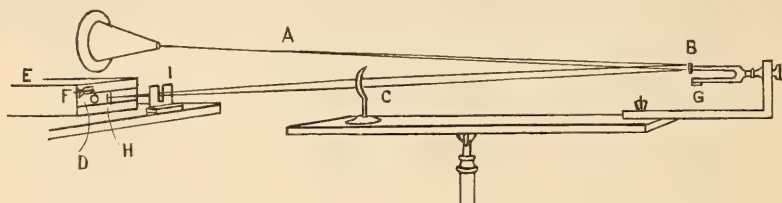
Instead of the elaborate apparatus of Londe, a beam of sunlight, a tuning-fork, and a lens, constituted the easily arranged apparatus I first employed, which no doubt may be reduced to a portable form of such simplicity that any one may use it at a moment's notice. By means of the diagram, Fig. 2, it may be explained as follows:

By reflection from a mirror, *B*, fixed upon one arm of a tuning-fork, a beam of sunlight, *A*, from a heliostat, is directed in a

dark-room through a meniscus, *C*, which projects it as a minute but brilliant spot, upon the shutter, *D*, of a camera, *E*. A counterpoise to the mirror must be fixed upon the opposite arm of the fork, and then its rate be determined.

the shutter was too heavily weighted by the plate, and by the method I used, the lamp-light spot made no impression on the plate. Recently, I was presented with a supply of the French "Perron" films, and having provided means of using a beam of sun-

FIG. 2.



The method as conducted with the apparatus is as follows: Upon the shutter *D* a light sensitive plate or film is fastened, and then the fork being caused to vibrate by a violin bow, the spot of light swings in a vertical line, *H*, which is impressed upon the film. The shutter is then released by the catch *F*, and as it flies along its course the vibrating spot of light traces a sinuous line upon the film, until the shutter reaches the end of its excursion when a second vertical line is traced. When the film is developed these lines appear, defined with an accuracy which depends upon the smallness of the spot of light and the care taken in performing the experiment.

The rate of the fork being known both the velocity and rate of progression of the shutter may be directly determined from the number and proportionate width of the complete undulations between the two vertical lines and the measured distance actually traversed by the shutter. This would correspond to the distance between the two vertical lines but for a slight expansion of the film which sometimes occurs during development and may increase their separation. The discrepancy is so slight that it may be almost disregarded, moreover the correction for it is very simple and even this may be avoided probably, by the use of a thin plate instead of a film.

Over a year ago I made a shutter to which was affixed a plate-holder for holding a sensitive plate to be thus used and I tried to employ a lamp as the source of light. But

light I soon attained successful results. I find that a spot of quite intense sunlight is required because its actual dwell upon the film at any one point during the transit of the shutter is very brief, yet, I have no doubt, a lamp will be eventually employed. The film referred to is so light that its weight may be disregarded.

FIG. 3.

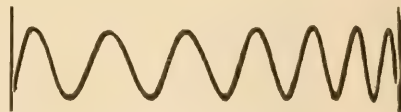
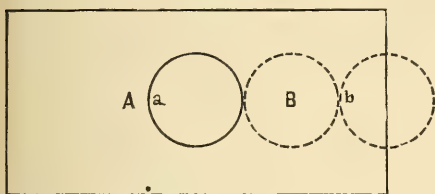


Fig. 3 represents a film thus treated and developed. It moved with the shutter from left to right. Counting as one vibration each undulation to and fro of the sinuous line, the number found between the vertical lines is about seven. The fork used was an E fork a shade flat, and its normal rate is not accurately known; but it was rated by the maker at 331.25 vibrations per second when loaded with about 1032 milligrammes on each limb. The seven vibrations divided into the rate of the fork gives directly the  $\frac{1}{47}$  of a second as the time required by the shutter to fly 4.75 cm., which is the actual distance traversed by the shutter, though the distance between the vertical lines is a millimetre or two greater owing to the expansion of the film. From these data the velocity of the shutter is easily calculated. The time of exposure, which is another matter, may be found quite as easily by methods which vary in different cases.

As an illustration take first the case of a shutter of inconsiderable thickness having an opening of 1.905 cm., and passing close behind an exposing aperture of the same diameter. First must be determined the distance the shutter must traverse to open and close the aperture. That this distance is in this case 3.81 cm., or twice the diameter of the aperture, is shown by the diagram Fig. 4.

FIG. 4.

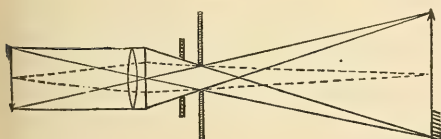


A. The shutter. B. The exposing aperture. To complete an exposure the following side A of the shutter opening must move from *a* to *b*, twice the diameter of the aperture.

In order, therefore, to determine the time of exposure in this case measure 3.81 cm. upon the film Fig. 3, by taking 1.905 cm. plus half the gain by expansion, in each direction from a point midway between the vertical lines. 4.75 waves can be fairly counted in the 3.81 cm. so located and these divided into 331.25 vibrations, the rate of the fork, give  $\frac{1}{70}$  of a second as the time of exposure.

If, however, the shutter be not of inconsiderable thickness or not close against the exposing aperture other considerations are involved. Suppose, for instance, you have an exposing aperture of 1.27 cm. before a single achromatic lens and a shutter open-

FIG. 5.



ing of 1.9050 cm., but have the shutter so far behind the diaphragm, as shown in Fig. 5, that when the openings are superposed the diverging rays entering the aperture just fill the shutter opening. The case seems practically the same as before because the shutter must still move 3.81 cm. from

the beginning to the end of an exposure, hence, the same calculation, perhaps, applies. This is about the arrangement in a camera I have used a great deal, and the exposure so calculated, the  $\frac{1}{70}$  of a second, is about my slowest average instantaneous exposure.

In the following table the information afforded by the film, Fig. 3, is condensed.

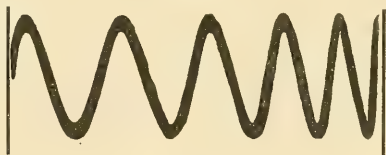
Slow shutter, 0.8 cm. headway. Rate of fork 331.25 vibrations per second at  $t$  23° C. Variation  $\frac{3}{50}$  vibration per degree C.

Film shows 7 vibrations to 4.75 cm. 4.75 vibrations to 3.81 cm.  $\frac{7}{331.25} = \frac{1}{47}$  of a second. Velocity of shutter =  $47 \times 4.75 = 2.132$  metres per second.  $\frac{4.75}{331.25} = \frac{1}{70}$  of a second exposure.

A railway train at 50 kilometres per hour = 833.33 metres per minute, 13.88 metres per second and 19.8 cm. in  $\frac{1}{70}$  of a second exposure. The velocity of the shutter is about  $\frac{1}{5}$  the velocity of the train.

In the case of a medium exposure with the same shutter the film, Fig. 6, is obtained.

FIG. 6.



Between the vertical lines there are  $5\frac{1}{2}$  undulations and in the middle 3.81 cm. there are 3.75 undulations. These data afford an exposure of  $\frac{1}{88}$  of a second during which the railway train moves 15.77 cm.; and a shutter velocity of 3.048 metres per second, which is about  $\frac{1}{5}$  the velocity of the train.

FIG. 7.



Finally, with the same shutter and a quick exposure the film, Fig. 7, is obtained, affording 4 vibrations between the vertical lines and  $2\frac{1}{2}$  undulations within the intermediate 3.81 cm., which indicate an ex-

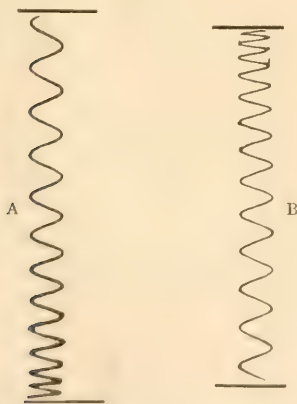
posure of  $\frac{1}{333}$  of a second, during which the train would advance 10.4 cm.; and a velocity for the shutter of 3.933 metres per second which is about  $\frac{1}{4}$  the velocity of the train. Other cases can be estimated quite as easily.

In these cases the distinction between slow, medium, and quick is that which is customary in the actual use of the shutter employed in these experiments. The shutter is, however, not uncommonly driven at a greater speed than that indicated in the latter of these cases, which, being selected at random simply to illustrate the method and not for the comparison of exposures, other details are omitted.

The relative velocities obtained by springs of different tensions and kinds and by shutters of various designs are now the subject of investigation and will be given in a future paper, but to other indications of the experiments already tried we may now advert.

I have long been satisfied that the motion of a shutter actuated by a retractile spring is accelerated like that of a falling body, but in greater proportion, and each graphic record of the shutter's motion infallibly confirms my deduction. In Fig. 8 A, is

FIG. 8.



presented the register of a common guillotine shutter actuated by a pair of light rubber bands (No. 33 Faber) and falling downward through a distance of 12.5 cm.

The acceleration increases to the end of the shutter's excursion, although it is diminished in this case by a retarding spring

which I omitted to remove, and the rubber bands are so attached as to be hardly stretched beyond normal length before the shutter is set.

The entire number of undulations is about 12, the opening in the shutter is 4.1 cm., twice which linear measure, plus a correction for expansion of the film = 9.2 cm., which, at the middle of the record embraces 7 waves and gives  $\frac{1}{47}$  of a second as the time of exposure for an aperture 4.1 cm. in diameter. If it were desirable the time of this exposure could be reduced by so constructing the shutter that its top would run nearly to the lens opening and the exposure occur at the last moment. To experimentally demonstrate this acceleration I some time since suggested a ribbon shutter designed so as to operate with a headway of 50 cm., more or less, before exposure. No experiment is now required to assure us of the efficacy of such a shutter. More rapid exposures can undoubtedly be secured by increasing the headway of the shutter with a given tension quite as advantageously perhaps as by increasing the tension, especially beyond exposures of the one hundred and fiftieth of a second.

It might be supposed that the acceleration of the large shutter shown in Fig. 8 A, is due in part to gravity. By its side (Fig. 8 B) is a record of the same shutter caused to fall (?) upward by the same spring tension. The difference in length arises from the difference in expansion of the films. In the number of undulations its upward is, perhaps, not quite the same as its downward record, but in the acceleration the two are nearly identical. In the *British Journal of Photography* for 1887, page 205, Mr. Richard Parr, reasoning from certain experiments, recommends an upward falling shutter as giving greater exposure to the foreground and less to the sky. His deduction is supported by the graphic evidence herein presented, that in ordinary shutters of moderate headway the first half of the exposure is longer than the latter half, and that even in the more advanced stages of the shutter's excursion a progressive acceleration still occurs.

In Fig. 9 is presented the record of another shutter. It is lighter than the one,

first used, being made wholly of pasteboard, and it was drawn by a thin rubber spring 9 cm. long, stretched in a line with the shutter to 19.1 cm. Our attention is immediately drawn to the peculiar doubling of the undulating line at its following termination. This is caused by a rebound of the shutter although it struck against a felt stop. This rebound could not occur in the three

FIG. 9.



cases first presented because a spring catch prevented it. This catch I have used for a long time in a hand camera especially when making rapid exposures, because I found that in such cases the rebound might be sufficiently great to cause a partial reopening of the aperture and a double exposure.

Through the maze of its vagaries we can, however, easily follow the primary line. This is one of four exposures made at different times with considerable intervals between. The shutter opening and exposing aperture were about the same as before, namely, 1.9 cm. in diameter. In all the films as in this there are about  $4\frac{1}{2}$  undulations between the vertical lines. All these films expanded in different degrees, but allowing for the expansion in each case there are about  $3\frac{1}{4}$  undulations in the middle 3.81 cm. From this it appears that the rubber springs do not change materially during short intervals.

These latter experiments were made with a fork of undetermined rate loaded with a much larger mirror than that formerly used. The camera with which they were made was so constructed that two shutters, very nearly alike, one in the usual place, the other in the focus of the lens of the camera where the plate showed register, are simultaneously released and being actuated by similar springs stretched to the same extent cross the camera in very nearly if not exactly the same time. The four exposures last referred to were made with films upon the front shutter in the manner previously described, but in connection with

two of them, one of which is the one shown, supplementary exposures were made to which a moment's attention may be given. For each of these the camera was relocated, so that the beam from the mirror on the fork fully covered the opening of the lens which focussed it to a point on the inner shutter. Upon this, in each case, a film was then fastened and an exposure made while the fork was vibrating, both shutters moving together, but no film being upon the front shutter. These exposures were made in reality by the front shutter. The motion of the back shutter which merely served to draw out the wave line might have been slower or faster, perhaps, without affecting the result. The record obtained in each case is a line showing nearly three waves and closely corresponding in this respect to the front shutter records but tapering to infinity at either end precisely like the lines obtained by Londe.

One of these records is shown in Fig. 10, and beyond the end of the primary line is

FIG. 10.



seen a supplementary figure which indicates a double exposure caused by the rebound of the front shutter and an almost simultaneous rebound of the back shutter. With rapid shutters the absence of this indication without the spring catch is exceptional. By the symmetry or distortion of this figure the relative movements of the two shutters may be inferred. From these records it appears that the inner shutter contains very nearly the same number of undulations and indicates very nearly the same time of exposure as that upon the outer shutter. They are made separately and as absolute constancy in the rubber spring can hardly be expected, a slight difference between them might occur. But tapering as it does to infinity at each, the line in the last record indicates that the effective exposure with the lens employed is somewhere about one-eighth or more, less than the shutter exposure, for the light which so faintly depicts that proportion of its terminals would constitute but an indifferent proportion of the

total actinic effect on the plate. In this case a surplus of light was used, and Londe has shown that this line descending as it does in intensity from an intermediate maximum, would reach infinity and terminate, with a weak light, further from both the beginning and end of the exposure. This relation between the lens and the intensity of the light may be shown, perhaps, quite as well without a vibrating beam. In Fig.

FIG. 11.



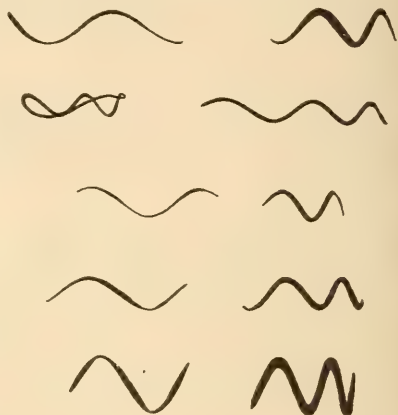
11 is the actual record of an immovable point of light upon the inner shutter, the black spots indicating the limit of excursion of the shutter, having been first made by special exposures. To draw comparison between two different records thus obtained, however, the velocity of the back shutter must remain unchanged.

From these indications we may advance into the realm of speculation, and, perhaps, discern a possible means of adjusting an exposure by a scale of tensions to the available light. To do this, we should, perhaps, determine by Londe's method the number of undulations traced by the lens upon the back shutter by a front shutter exposure determined by my method with a full light. Then with a medium light slow up the front shutter until, by successive exposures, a similar number of undulations be obtained. Note the lesser tension required, and determine that corresponding to a light requiring the slowest exposure applicable to moving objects. The adjustment of the tension, which we now do by intuition, might possibly for that shutter and lens be thereafter done by a scale of actual velocities, only an invariable spring being required and one element of uncertainty in instantaneous exposures be thus avoided. The shutters most generally used are, however, not simply drop shutters, but are so constructed as to move in an arc or circle, and in some cases within an enclosure which prevents the attachment of a film.

One of these shutters reputed to be very rapid, consisting of two circular apertures passing in opposite directions, and opening

and closing from the centre at the diaphragm of an optimus lens, I have examined by the modification of Londe's method described, and the interesting records obtained are shown together in Figs. 12, 13, 14, and 15. Fig. 12 was obtained with a

FIGS. 12, 13, 14, 15, 16.



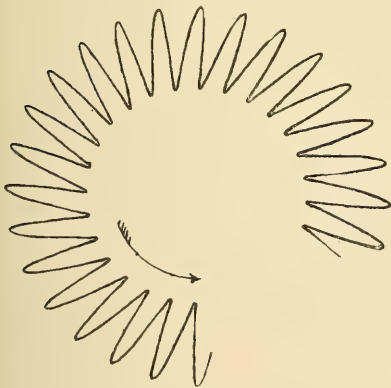
beam of normal sunlight. Fig. 13 with a beam of condensed sunlight, and both with a similar slow exposure. The double exposure is always obtained, and is not much shorter than the primary exposure. My experience leads me to believe that a large proportion of the instantaneous shutters in the market are worthless, owing to this defect. The remedy for it is a large overlap to cover or a catch to prevent the rebound. Neither of these precautions is usually provided. The effect of this double exposure upon moving objects is to give a blurred picture usually attributed by its many amateur, and for that matter also professional victims, to inaccurate focussing. A large proportion of failures and the loss of many plates occurs, probably from this cause.

Fig. 14 was obtained with a beam of normal, and Fig. 15 with a beam of condensed sunlight, and both with the quickest action of the shutter that had been employed with that lens. In both the first and second pair of these four records, a feature of Londe's method, namely, its dependence on the intensity of the light is at once apparent. To obviate this variable element, I removed the lens and by so locating the camera

that the beam from the meniscus, Fig. 2, focussed on the back shutter passing centrally through the shutter opening, which enlarged in the plane of vibration of the fork, I obtained; with the same exposure, as represented in Figs. 14 and 15, and a beam of normal sunlight, the record shown in Fig. 16. This appears to give the true time of the exposure, and seems to reveal an accurate and simple method, especially adapted for determining the time of exposure of any diaphragm shutter whatever. The velocity and expansion of the receiving film are matters of indifference. It is only necessary to divide the rate of the fork by the undulations obtained to arrive at the time of exposure which, in this case, is about  $\frac{1}{147}$  of a second, obtained by dividing 331.25 by  $2\frac{1}{4}$ , a fair estimate, perhaps, of the number of undulations found in Fig. 16, which suggests that for closer reading of the more rapid exposures, a fork of much higher rate may be advantageously employed.

Instead of a sliding shutter, a rapidly rotating disk may be employed to carry the sensitive film, which, as the weight is then immaterial, may be a plate and the correction for expansion be thus avoided. By means of a simple multiplying wheel I obtained the record given in Fig. 17 of a For-

FIG 17.



rest "due ratio" shutter at a slow exposure which was chosen in order to obtain nearly a circular tracing. It is evident, however, that by revolving the plate with sufficient rapidity the same result may be secured

with any exposure. Rapid rotation may evidently be obtained by electro-magnetic devices, and either the duration of the exposure or with a little calculation the rate of rotation of the plate may be determined. If the weight of a plate would defeat the latter purpose, the film may again be advantageously employed.

The entire avoidance of friction seems to render this method applicable as a new means of measurement, not in this alone, but in many cases other than those relating to photography.

It is hoped by its means to measure the duration of electric and lightning discharges and the flash given by various illuminants, such as magnesium powder and gun cotton.

The beam of light, however, must be adapted to the kind of shutter examined. In a central opening shutter, for instance, only a minute pencil of light entering the centre is necessary. But with an ordinary drop shutter if such a pencil be used it gives only the time occupied by the opening of the shutter in passing the point where the ray enters, irrespective of the size of the exposing aperture. In this case, the exposure may be obtained closely by calculation, but if a converging beam of light, filling the exposing aperture be employed, the undulations obtained would probably afford a closer approximation to the true time of exposure. With the assistance of this method every shutter might be marked by the maker with a sequence of exposures, corresponding to certain tensions of the spring, and afford an additional guide and gratification to the user.

Exposures varying from the  $\frac{1}{500}$  to  $\frac{1}{5000}$  part of a second are not uncommonly mentioned. Mr. Eadweard Muybridge, in his circular of February, 1884, promised that verified exposures of  $\frac{1}{5000}$  part of a second would be used. Some relation of the velocity of the shutter to the angular velocity of the moving object, accounts for the apparently sharp pictures that may be taken at a distance, of an object moving at greater velocity than the shutter, and which at a less distance would afford but a blurred image upon the plate, and leads, perhaps,

to many consequent illusions respecting the rapidity of so-called instantaneous exposures. To obtain an exposure of  $\frac{1}{8}$  of a second with an almost frictionless shutter weighing only 8 grammes, under the conditions described, a strain of about 250 grammes was required, and to attain the  $\frac{1}{16}$  of a second the strain increased to about 719 grammes, almost three times as much. The proportional increase required to reach the  $\frac{1}{3000}$  of a second, were such an exposure attainable, may be imagined.

Since, with full sunshine entering the lens, however, the effective is so much less than the shutter exposure, the difference with the weaker light used in practice must be proportionally greater, and we must not lose sight of the probability that our measures correspond to much shorter effective exposure.

The weather has afforded me no opportunity of taking test pictures with exposures specially measured by the method, but I have formerly taken many which compare favorably with those usually credited to very high exposures. Knowing nearly the tension used, I find by subsequent measurement that the shutter exposure employed in some of these instances was approximately the one hundred and sixty-sixth of a second. Fig 1 affords a crude illustration of the relation of this exposure to a moving object finely lighted.

Should this method sustain a more critical study, and the exactions of scientific application, it may prove to be the key to several photographic problems. To at once anticipate its probable realizations in that event, such, for instance, as the determination of the comparative efficiency or individual equation of lenses, and the proportionate exposures of various shutters, is a temptation hard to resist.

The present contribution must, however, terminate with acknowledgments to several members of the Brooklyn Academy of Photography for valuable assistance in promoting the advent of a method which appears susceptible of refinement in an eminent degree, yet for many practical purposes seems in its crudest form to afford sufficiently accurate measurement of an instantaneous exposure.

## TRANSPARENCIES FOR THE WINDOW AND LANTERN.

BY THOMAS PRAY, JR.  
Boston, Mass.

THE beautiful and permanent, as well as practical in a utilic sense, is all embodied in a window or lantern transparency, if it be a good one, and whether it be a good or bad one depends upon good or indifferent negatives and good or bad handling. A lantern slide requires little different handling from a window transparency, and a window transparency can be made in a plate of rapid emulsion, but my personal preference is for slow plates, 14 to 16 Warnerke, yet my own collection has in it "fast plates" both in camera and by contact.

I have noticed lately a great many ideas as to Prof. Newton's standpoint, that there is no need of especial plates for transparencies because *he* can and does make beautiful slides from almost any plate, and that a rapid plate is just as good, etc. Having a knowledge of "the facts in the case," I can say that my friend Newton is entirely correct. Now the facts in the case are simply these: There are not six men in the United States, and not over a dozen in the world, I believe, who have his experience or his knowledge of the chemical composition, reaction, and requirements of photographic processes, and the chemistry of the development, fixing, etc., of the resultant negative. He is familiar with collodion, collodio-bromide emulsion, bromo-gelatine, and printing from all sorts of prepared paper; has a thorough knowledge of chemistry from A to Z, and back; to which add about thirty to forty years of actual experience. He thus becomes a man of rare attainments in this line of one of his hobbies; he has furnished the brains for one of the most popular dry plates now on the American market, and made it a financial success, from a sickly bantling.

Having seen his "negs" and "slides" from the rapid plates, and been favored with many chats (from which I have made short hand-notes at the time), and having proved the matter in my own work, I can speak positively. Yet I do not advise amateurs or others to tackle rapid plates

unless they are prepared to take a great deal more pains than they usually do, both in the chemical and manipulative features; and if the snap-shot, quicker-than-lightning crank runs into this, let him understand that there is no room for him or his rush-and-spoil methods in transparency making, for we are now scribbling for that sensible majority of people who prefer to go slow and make rapid progress, by the thoroughly mastering of whatever they undertake, and producing, if a few less pieces in number, a large majority of the whole in nicely exposed, developed, and clean work.

The making of transparencies is one of the most bewitching of pastimes, one of the finest of educational ideas for the young. Such souvenirs of personal tours from one friend to another, are the most acceptable gift, and, the professional, "off days" can be "put in" by making both slides and window pictures to a profit, if only pains be taken.

The slow plates are now offered in such a variety of material that almost any taste can be gratified; practically the same developer will work either of them to a completely satisfactory result, *if pains are taken*.

In February, 1885, Anthony's *Bulletin* published my formula for pyro development with all the processes; and with little change that formula is still good on either the Anthony, Carbutt, or Forbes slow plates for transparencies; but for all general work my own preference is for the oxalate of potash and sulphate of iron, especially for those not up in chemistry or practice. The formula is as follows:

Oxalate of Potash, neutral	8 ounces.
Hot Water, 120°	24 "

Mix by pouring the water on the potash; let it stand for twenty-four hours preferably, then filter and keep in a ground-glass stopper bottle; when this has been done, add to it 12 drops of C. P. sulphuric acid. Call it No. 1 or A.

The iron solution is made up of:

Sulphate of Iron	2 ounces.
Water	8 "

Mix; when clear, filter; and add 8 drops of sulphuric acid. This is No. 2 or B.

The hypo is made by putting 12 ounces of hypo in a two-quart bottle; fill up with water, and add 2 drachms water of ammonia or solution of carbonate of soda. *Simply make the hypo alkaline.*

*Note.*—If Anthony's slow or transparency plates are used, dilute the hypo as above with equal parts of water, or reduce it one-half.

#### Clearing Solution

Hot Water	2 quarts.
Ground Alum	4 ounces.

After twenty-four hours add 2 drachms C. P. sulphuric acid.

Bromide of soda solution, 15 grains per ounce.

This completes the list except water, and an unknown quantity of patience and pains,

My own practice is to mix up the developer as follows:

No. 1 or A	3½ ounces.
No. 2 or B	½ ounce.
Bromide of Soda Solution	15 drops.

I use a rubber tray that will hold two plates 3½ x 4½. The exposure may be made to gas, kerosene, or electric light, as may be convenient. Let the exposure be made at two and a half to four feet from the light, and the time carefully noted; then put the exposed plate in the tray, pour over sufficient developer surely to cover the plate (as, if any part of the plate is uncovered it becomes spotted permanently—more so with pyro), and wait for the appearance of the image. If it comes up too fast, expose a shorter time; if too slow, and it does not attain sufficient density, use a little longer exposure. Then, when that point is reached, you can keep on exposing and developing, without waiting for each one, and so make quite a number at one sitting.

A pretty fair slide can be made from a thin or indifferent negative by exposing it to a more diffuse light (further from the light), and for a longer time.

In my own practice a quart of developer is frequently made, and twenty-five or thirty slides made in an evening; it can be done on the kitchen table, in the bath-room, or in the laundry, as circumstances necessitate or require. Yellow post-office paper put round a hand kerosene lamp will be suffi-

cient to develop by, and when ready to expose step out into the dining-room or sitting-room, where white light can be had. Study the negatives and expose more or less according to subject, contrasts, and density generally, and if you try to bring all exposures to the same developer you can easily have four to six in the developing tray at one time. I give lantern slides five to eight minutes to come up full, before they are washed off. This point requires a little experience, and if attention is given and the same strength of developer used, anyone can shortly master it. After a few slides have been put through, one-quarter or more developer is thrown away, and as much fresh added; do this so as to keep the strength about uniform, and in this way obtain more evenness in the character of the production. I do not practice or approve of the eternal tinkering of the developer by addition, subtraction, confusion, etc.; but if an amateur only wishes to make a *very few* slides or windows, he or she can expose at random, develop by adding more iron or bromide, and have in one case a harsh, uneven effect in the lantern or a stained high light, with now and then a passable production.

In exposing to get a part of a large negative, a piece of *very thin* yellow or black tissue paper can be put on the negative before the slide goes on, and so mat out what is not wanted, so as to get a clear glass edge; and this can be made in all fancied forms; or by *double contact*, and a pair of mats, or a mat and a piece of lace, most fanciful, unique, or artistic effects can be produced.

The development should proceed rather slow; carry a few degrees further than desired in the finished picture; and when in the hypo it should remain three to five minutes longer than when white bromide is perceptible to the eye, by close scrutiny.

After development, wash in running or other water for a minute or two, then put in the clearing solution for one or two minutes only; wash again, and put into the hypo; when fully clear, wash for five minutes, and put into the clearing solution for ten to fifteen minutes; then rinse for two to ten hours. A little practice will

make anyone reasonably proficient, but the closer one observes the faster he progresses and the more gratifying are the results.

Of plates, I am using the Forbes blue label, with most brilliant results. If these plates were put upon thinner glass they would be most admirable, for they are very uniform and come out to answer all the requirements. Stanley's plates for transparencies also come out beautifully, as do Carbutt's, when they do not vary; others may do as well, but my own experience is measured by those mentioned.

Pyro development will be, from necessity, treated in another article.

In the P. P. of January 7th, a Mr. Creelman, of New South Wales, asks why bromide of soda should be used with soda developer. If Mr. Creelman had been a reader of the PHILADELPHIA PHOTOGRAPHER in 1884, '85, and '86 he would not have asked the question. Prof. Newton's reason is simply: Bromide of ammonium is decomposed and free ammonia liberated, and will make green fog in a negative if developed for any length of time. Bromide of potash *will* answer, but gives harshness to the negative. Bromide of soda is harmonious, compatible; and, aside from chemical reasons, common sense urges harmony when we can produce it. The same applies to a positive, with more force (but less chemical necessity) as to final results.

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[Translated for the Philadelphia Photographer.]

## A COMMONPLACE ALBUM.

BY L. SCHULTHESS.

IN the first number of this Journal, it was recommended to keep in a sketch-book a copy of every successful plate, and I would like to call attention to an arrangement which combines the advantages of an album with those of a collection of loose pictures. Each separate sheet can be easily taken out from the binding or cover, supplied by another and by the following simple contrivance next to the leaves upon which the pictures are pasted. The color and thickness of the cartoon depend upon the taste of the individual, yet it is to be taken into consideration that thin cartoons, with-

out regard to the price, room, and weight-economy, lie much smoother than the thicker kinds cockled in the drawing by the moisture. The size must be governed, of course, by the size of the plates. Fig. 1 shows the arrangement for fastening the separate sheets. *A, B, C, D*, is the picture-holder, which is joined to the small cartoon-strip, *a, b, c, d*, by a fold of linen. This strip is provided with two holes, which must exactly correspond in laying the sheets over one another.

The binding consists of two strong cartoons, which are bound by a leather back and in the corresponding places with the two openings, they are furnished with a leather fold. By two screw-bolts, which run through all the sheets and the two bindings, by means of the two openings, the whole system is held together.

By loosening the two screws, the pictures can be taken out and placed together as one wishes. Any skilful bookbinder can produce such an album, and the screw-bolts can be furnished for a trifle by any mechanic.



Fig. 2.

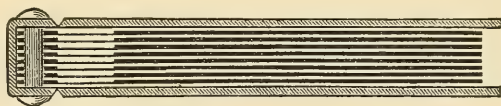


Fig. 3.



Fig. 4.

The advantages of this arrangement are plainly evident—and it is to be hoped that the invention will be more widely used.—*Der Amateur Photographer.*

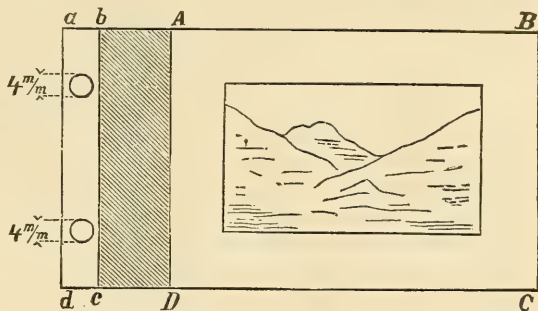


Fig. 1.

## WHAT IS A SOLAR RAY?

BY DR. J. PHIPSON.

LET us endeavor to show how this question can be answered in the present state of science. For nearly almost every one, even for learned astronomers, the sun is an incandescent globe, in whose atmosphere frightful storms are formed, extending hundreds of thousands of miles, and which

The thread of the screw must not be cut in any further than necessary—so as not to render the lifting of the leaves too difficult.

Fig. 2.—Screw-bolts with box. Fig. 3.—Closed album. Fig. 4.—Album folded up. (For clearness only a few sheets are given in the sketch; in reality there are 50 to 100 pieces.)

may be studied with a telescope supplied with a spectroscope—photography takes also a part in this study—an atmosphere which is in a perpetual state of agitation, and in which metallic substances are volatilized and widely dispersed. This globe sends us, according to accepted views, an enormous quantity of heat, and it is easily

demonstrated that without this heat our earth would be dead. In reality *heat* is the *soul of the world*. Properly speaking, we have but one instrument to ascertain the action of heat, and this instrument is based on the dilatation that bodies undergo when heated. A solar ray causes the thermometer to rise at the surface of the earth. Baked clay contracts, on the contrary, by the effect of high temperatures, and on this is based a pyrometer (Wedgwood) for measuring approximately the heat of furnaces. There is also a very delicate thermometer, the thermopile, which serves to indicate the differences of very slight changes in temperature, the effects being shown by the motion of the needle of the galvanometer. One day, perhaps, this instrument may be utilized for showing if the sun really sends rays of heat. The fact is, that founding our opinion on the indications of a mercury thermometer, we reach the conclusion that the *sun sends us only light*. As we rise in the atmosphere, either in a balloon or on high mountains, in the region of eternal snow and ice, we find as we approach the sun that heat diminishes and light increases. It is very far from being proved, therefore, that the sun is an incandescent globe and full of volcanic activity, since the interplanetary spaces are without doubt "*cold and silent*." The solar ray, the product of the vibration of the atmosphere of the central sun of our system, reaches us as a *nucleus of light*, which by contact with our atmosphere and the divers terrestrial bodies, is transformed into *heat*, chemical action (*actinism*), and into electricity (*magnetism*), according to circumstances. The prism does not analyze light as Newton has said, for his idea was that it *decomposed* the solar ray into seven kinds of rays of different colors. The prism transforms the ray of light (that is to say, the luminous vibration) into vibrations of *heat*, of *color*, and of *actinism*. The prism thus changes the nature of the vibrations, which emanating from the solar atmosphere, extend to all interplanetary space. The solar ray emanating in a straight line from the sun is therefore a creation of our imagination, inasmuch as there is a question here of *effluvia*, or circular vibrations, extending all around the solar atmosphere, and spread-

ing in space; vibrations which change their properties when they come in contact with divers substances of which the planets are composed—vibrations which are from their origin pure light. The luminous vibration of our central sun is the essential condition of all terrestrial phenomena; it is the source of all things, of terrestrial heat, of the evaporation of the waters of oceans and rivers, of clouds, rain, the mechanical and chemical forces of the earth, and of the life of plants and animals. Such is the idea that we form of a solar ray.—*Moniteur de la Photographie*.

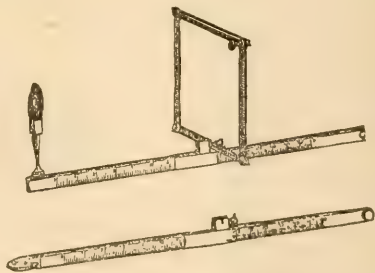
[Translated for the Philadelphia Photographer.]

### A GERMAN VIEW METER OR ICONOMETER.

BY PAUL BALTIN.

THE iconometer described below is not, by any means, founded on a new idea, but is meant to call the attention of those interested simply from a practical and useful standpoint.

FIG. 1.



This instrument consists of a hollow, four-cornered, nickel-plated brass pipe, about 20 centimetres in length, one side of which is provided with a millimetre scale. A slide runs along the tube, into which the frame, made out of watch-steel spring, is screwed. At the end of the tube, the zero-point of the scale is fixed. The application is the same as in all similar instruments.

The special beauty of this one is that it can be closed up. The frame and dioptra find their places inside the tube, and the whole apparatus can be put into the coat-pocket, just like a lead-pencil.

It receives much mention in the trade not

only in Berlin, but also in Vienna. Dr. Eder speaks very highly of it.—*Zeitung*.

## COMPOSITION AS APPLIED TO PHOTOGRAPHY.\*

BY DAVID R. CLARK, M.A.

SOME photographers think that if they set their cameras down before a subject, carefully focus it, and after giving the plate the proper exposure, they are then in possession of a correct and beautiful picture, which, with careful development, will produce a perfect and artistic reproduction of nature. To a certain extent this is true, but the making of a picture depends upon the position of the camera, and what is taken into the field of the camera and what is left out. In other words, it is at the beginning of the operation that the work of an artist is principally found; the rest of the labor is gained by experience and a careful watching of the details of a technical process. However good the position chosen, without careful exposure and development you cannot produce a good photograph; but conversely, however careful the exposure and development, without a careful selection of position you will not produce an artistic picture. At all events, if you do, it is more due to chance than anything else; or, in other words, rather to "luck than good guiding."

If two photographers choose the same subject, as very often happens, even although they may be both technically proficient in photography, and the photographs produced may be equally like nature, yet generally one will be superior to the other, because the one man had more the eye of an artist and chose the best position, with the result that his was a picture, whereas the other's was a mere transcript of nature. We frequently see photographs forming the most charming pictures; more frequently, however, we find them forming no picture whatever, although we know the places taken to be most beautiful in themselves.

Composition may be defined as not only the arrangement of the subject, but its production from a preconceived idea. It is

choosing such a point of view as will give the best effect, and the arrangement of the objects in the picture relatively to one another, and collectively with regard to the whole, that they will form a general design.

Mere technical knowledge of the rules of composition will not avail. It is the artist's eye that sees the difference between dry, matter-of-fact imitation, and ideal selection of nature, and show thereby the wide difference between merely mechanical and intellectual art. The object to be achieved is not how closely the individual things in a photograph have been exactly copied from nature, but how powerfully the artist has embodied the impression that nature makes on the mind.

To illustrate this, however, more clearly, let us mention a few rules that may be found useful. These rules are not without exceptions—in fact, they may be said to be suggestions more than rules—but the exceptions, if fairly examined, may only go to more firmly establish the rules themselves. Circumstances, however, so alter cases that no arbitrary rules can be laid down; indeed, it is far easier to say what should not be done than what should be done. The four straight lines that form at right angles the usual boundaries of a picture present an obstacle to the photographer, as they produce artificial limits to his view, for, of course, every one knows as well as the photographer himself that natural views have no such boundaries. This may seem at first sight an unimportant fact, but it lies at the root of the difficulties with which the photographer has to contend in the composition of his picture. If possible, it should be his endeavor to make the spectator forget these artificial boundaries, looking into the picture as at nature, and forgetting the artificial in the beautiful.

The first rule I would suggest for your consideration is: Never place the principal object of size or interest exactly in the middle of the picture, either vertically or horizontally. A central position divides the surface into equal parts, and produces uniformity rather than variety. To illustrate this, I now show you a picture of a village church in the centre of this paper. The spire is in the centre. Trees on each

\* A communication to the Glasgow and West of Scotland Amateur Photographic Association.

side. Pathway leads straight. Shape is square, uniform—in fact, the most uniform that could be chosen. This (illustrating) is one of the worst examples. Let us take a position to the side of the former view and place the subject to greater advantage, thus reducing the foreground. We now see in the illustration which I have sketched how the whole becomes a picture.

The second rule which I offer for your consideration is this: The photographer must make every effort to convey the idea of atmosphere in his picture, and endeavor to realize the idea of the separation of the various objects in a picture. To convey this idea "none of the principal objects or leading features of his picture should be perpendicularly over or horizontally level with each other, because if they be so placed they either repeat actually or by suggestion the horizontal and perpendicular lines which artificially limit his picture, and which require to be concealed as much as possible from observation.

In Harding's illustrations of this law you will find how true this is, and every one must know by experience how the alteration of the position of the camera nearer to a tree or other object raises its height, and thus lifts it from the horizontal line that it would otherwise form with other trees or objects. Frequently it happens that long straight lines are so connected with the subject that they cannot be suppressed. In this case the best way to get over the difficulty is, if possible, to introduce contrasting lines to break the monotony. A piece or two of timber placed against a wall, or a tree branch may be used; or the foreground may have sufficient interest in it to lead the eye away from the monotony of the straight wall. Figures, of course, are what is wanted, and if you can get some one to stand in the proper position, you can in that way overcome the difficulty. The great point, however, is to make the figures natural in pose, not to appear as if being "took." In landscape it should be always remembered that figures should not be the centre of attraction in themselves apart from their connection with the picture, and the moment they overstep this they become very objectionable.

When we have selected our position for a picture, there may be an uninteresting foreground, and we should, if possible, avoid that, unless it is for the purpose of introducing a contrast of repose to motion or life in other parts of the picture. Thus, a strip of smooth sand with a quiet pool reflecting the sky comes in as a splendid contrast to a rough, tumbling sea dashing on to a shore; or a long stretch of moorland, which is too quiet and tame in the middle distance, may be finely relieved by clumps of bracken or heather, or by a few rocks in the foreground.

Again, suppose you have a mountain scene with a loch, but there is no decided foreground at the spot you are standing on; look around, and, perhaps, a few yards off you may see a few rocks from which your photograph may be taken, and which in themselves present the desired contrast. Common sense will suggest at once that the scene should be taken from the rocks, and the rocks themselves should be introduced at that point where they will appear to the best advantage; but they should not be made to repeat again the form of the mountain or the circle of the lake, but contrast with them.

The third rule, and it is probably the most important of all, is this: There should be in all compositions one chief point of interest. If it be large there is no limit to the lesser points of interest in the picture, provided you keep them subsidiary, and do not let them detract from the one chief point of interest you have in view. "To choose a subject well, you should always think how it will compose in your picture," either with or without the accessories or figures or other effects. Fix upon the subject you wish to photograph, and let all the accessories contribute to form the picture; do not let them detract from its interest by leading the eye to centre on them instead of the picture itself as a whole. Where figures or accessories are introduced they should be placed not where it is comparatively weak. For example, an open expanse of field is always a trying space to represent agreeably. There a group of sheep or cattle at a distance may come in naturally, and form a pleasant contrast. The

straight line of a river's bank, such as in Mr. Snell Anderson's picture exhibited at last exhibition, was relieved by the cattle along the bank, and helped to give interest to a picture that might have been otherwise monotonous in detail.

A bridge presenting a long, straight line on the top is relieved by a figure or two looking over the parapet, and they tend to keep the eye occupied with an interesting detail in a portion of a picture which would be uninteresting, and the straight line in which by itself, when so prolonged, would be an inartistic feature. I now show you an enlargement of a photograph I took of Inchinan Bridge, and you will see how I have endeavored to select a suitable point of view, and how the figures on the parapet of the bridge relieve the straight lines.

A fourth rule of composition is: That the two sides of a picture should balance each other nearly always in either interest or mass, or both combined. But the best form is the last named, where the smallest mass has the greatest interest; but the reverse equally holds good. Where you have on the right, say, a cart returning from a hay-field, with figures in the foreground, a nicely arranged lighter and distant background on the left, although in itself too distant to form a complete picture, may have sufficient interest to heighten the effect of the prominent mass in the foreground.

Further, to form a good picture, not only the masses combined with the interest must balance, but the light should be concentrated on one point and the shadow on another. It is a necessity to have some leading means of light toward which the eye is directed; also, on the other hand, the same principle applies where there is a leading mass of dark on which the eye may rest without being disturbed by any other equally effective portion of the picture; and upon the size and position of these relatively will depend the general effect of the picture.

Let us consider where the high light should be placed to be most effective. I draw an oval within a parallelogram representing an ordinary picture. It is bisected by a line horizontally, and by a line vertically. The high light should not be found

in the centre, as it is too formal there; or in the corners, because if in the latter the eye would be drawn away to it from the general interest of the scene. It may occupy any place within the oval, in fact, other than centering on the lines. It should be placed somewhat removed from the centre, but not concentrated in any of the corners. I will now show you a number of engravings of well-known pictures to illustrate this.

The French consider a landscape is no picture unless it has three planes or parts. The first plane is the foreground, the second plane the middle distance, and the third plane is the extreme distance. Endless variety may be given to the composition by varying the size and the importance of these. If the extreme distance is absent a shut-in feeling is produced, and a little peep of distance should be gotten in if possible. If the middle distance is not seen the effect is theatrical, and although a fine landscape may be without a visible mid-distance, we know and feel it is, and must be there. Both these can, however, to a certain extent, if one or other is absent, be indicated by a floating cloud, or a printed-in sky. In fact, by carefully selecting and printing in a sky, we can give quite a character to a picture; but it is important that a suitable sky be chosen in accordance with the feeling of the scene, and the impression on the eye that we wish to produce. If the foreground is omitted, all strength goes out of the picture.

Lastly, if the mid-distance and extreme distance are absent, the photograph is no longer a landscape, it is merely a study; and even in the latter it is better to have some gap in a hedge or open gate or window to catch a glimpse of distance.

I might speak of the effects produced on figures by light against dark, and *vice versa*, but time and your patience will not permit this, as I have already trespassed too long; but let me say in conclusion, what applies to landscape in general applies to groups and figures also. In making a study or landscape try to catch the expression of your model or the character of the scene.

Above all things, never copy. In the words of a well-known author, "Copying the work of others utterly stunts imagina-

tion and self-dependence." It is important not to do this, for we must in the long run depend on ourselves. It is better to get into the habit of depending on yourself at first and for ever. Let us be self-reliant; do not let us be so self-conscious, but humble, knowing that in making pictures our best attempts are far behind the great masters who have made their names famous in the great world of art.

so to speak, and she will reward us with many a lovely picture to remind us of summer days and brilliant sunshine, while sitting by the winter's fire.

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### OUR PICTURE.

A PLEASANT rest from considering a variety of pictures at one time, comes with the single example in black and white which



If we study nature we shall have the reward of the pleasure she gives only to students; but let us watch her varied expressions and take her with her "best face on,"

is presented with our current issue from the studio of Mr. Oscar Suck, in Carlsruhe. In our early January issue, and previously, we have commented upon the excellent pro-

ductions of that master photographer and noted his winning of one of the prizes at the Chicago Convention.

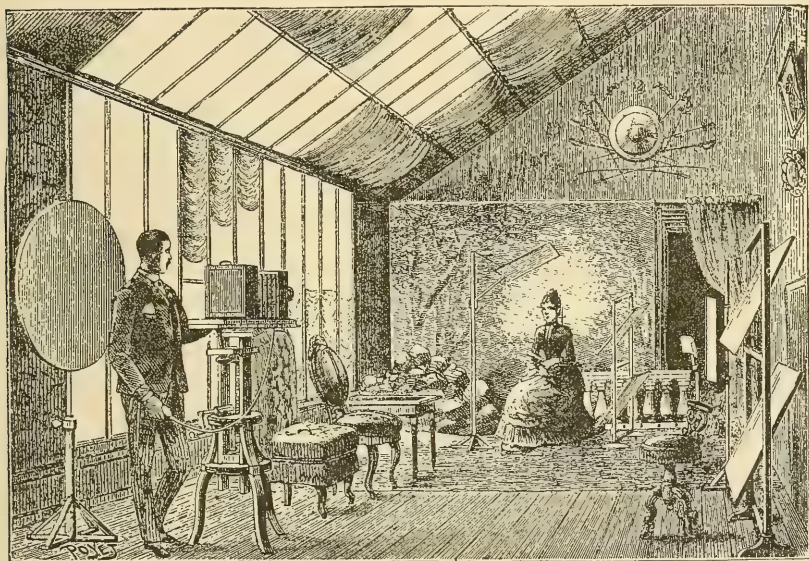
It is good sometimes to turn from such brilliant examples of silver printing as he exhibited and consider simply the qualities of light and shade—just as we did a month ago with Mr. Gutekunst's "Ready for Action." Nothing dazzles us then from the complete enjoyment of the pure qualities we all strive for in our best negatives. We have such an opportunity now, in this lovely proof of negative making by Mr. Suck, and positive making by the Crosscup and West Engraving Co., Phila., from one of the perfect type plates by the process of Mr. F. E. Ives.

## AMATEUR PHOTOGRAPHERS' STUDIO.

BY A. LONDE.

WHILE the studio for the professional forms an indispensable element of his business, it is a luxury for the amateur.

For building a photographic studio there are certain rules which are here given in brief. If possible, the studio must incline toward the north, and should not be inclosed by high-built houses, because the light would be retarded, or there would be bad reflections. It is most advantageous to erect a studio in a yard or garden. The roof and the wall lying toward the north should be glazed, but this glazing need not extend



So many of our readers now own Burnet's essay on *Light and Shade* that we need only refer to it, to press all the lessons of those studies home.

We go further, and add herewith another study from the same source and produced by the same means. The unpretentious, yet artistic posing and lighting; the absence of all inharmonious accessories and backgrounds, together with their technical qualities, make this twain very acceptable and useful as portrait studies.

the whole length of the studio. For instance, in an atelier 7 metres long it is sufficient to have 5 metres glazed. A width of 3 or 4 metres is quite sufficient while, of course, it does no harm to have it broader if the dimensions of the room permit. The angle of incidence of the roof should be about 40°. The roof should not be too high—lower ones allowing the best pictures to be taken, so it is said. The choice of glass is important; it must be without blemish, not too thick, and particularly quite colorless.

On the glazed part of the roof, and parallel with the length section of the studio, a row of iron rods about 60 or 70 centimetres apart, should be placed to support curtains about 1 m. long. These are slid along the rods by small rings, and have two curtain poles, one at each end of the curtain, whereby their position can be changed by using a long stick, thus regulating the light. Also on the glazed north side small curtains can be used, and in this case it is better to manage them with small cords. The curtains may be either white or black-blue.

For backgrounds many use a screen spread with cloth or shirting. It is best to provide three different ones, a black, a gray, and a white. With the black background, portraits running off into black ground; with the gray, ordinary portraits; and with the white, portraits running off into bright ground. Still another background, with which very artistic work can be done, is the round, half-dark, half-bright, or graduated background, which one obtains when he uses a large funnel before the opening of which the person sits. In this way the head is well taken, for behind the lighted half of the countenance, the black ground appears, and behind the shaded half the white ground is seen. Unfortunately this background takes up too much room, but by a simple contrivance it can be compressed—that is, by a circular screen covered with linen, which is so skilfully painted as to obtain the same effect as the funnel. This screen can be so arranged that it can be turned in the middle, and thus so used that the same effect can be obtained above as sideways.

The amateur must use his own taste in regard to the indispensable articles of furniture. A head-rest, though not as necessary now as formerly, should still be obtained.

The principal things in portrait-taking for the amateur consist in studying the lighting well, in regulating it with the help of curtains and screen, and in giving the person to be photographed a natural expression and an unconstrained position. The movable illuminating screen serves a good purpose, either strengthening or diminishing the light. The so-called head-screen consists of a disk covered with more or less

transparent material, and is placed between the person and the light; the other kind consists of a frame, into which four-cornered movable reflectors, covered with muslin, are introduced. This arrangement serves to brighten up parts that lie too much in the shade.—*Der Amateur Photographer.*

## HELIOCHROMY.

MR. F. E. IVES delivered a very interesting lecture on color-photography on Monday evening, February 27th, at the hall of the Franklin Institute, Phila. After a lengthy historical review wherein he reverted to the experiments of Seebeck, Herschel, Becquerel, Niepce, Poitevin, Lea, Collen, Ducos du Hauron, and Sir David Brewster, Mr. Ives said:

“A photographic method that would accomplish the selection and combination of type colors automatically, and in such a scientific manner as would invariably secure the representation of each distinct spectrum color by a definite and suitable color mixture, would, I believe, be the nearest approach to accurate photography in colors that we are likely ever to realize.” This method of Hauron’s, Mr. Ives said, although it had to be abandoned as utterly unreliable, was found to reproduce many pigment colors very well indeed. This result was due to the fact that all bright pigments reflect the light of two or more parts of the spectrum, and in some cases, by mere coincidence, in such proportion as will secure for them approximately correct representation by a process that is incapable of producing a fair counterfeit of the spectrum. “Inasmuch, however, as we do sometimes have to deal with nearly pure colors, and the composition of the mixed colors is also infinitely varied, it is evident that a heliochromatic process, in order to be successful, must be capable of counterfeiting the spectrum itself. Such a process I have devised, and will now undertake to describe for the first time. As I have said, I reject the theory of three primary colors, recognizing the fact that the color of each part of the spectrum is perfectly distinct from that of every other part; I do not attempt the impossible feat of actually reproducing each ray of simple

color, but I undertake to make each ray of simple color select, in a definite manner and quite automatically, such a combination of type colors as will successfully counterfeit it to the eye."

#### MR. IVES'S PROCESS.

Mr. Ives then proceeded to demonstrate, by analyzing various bright colors with a projection spectroscope, the difference that may exist between true spectrum colors and very perfect counterfeits of the same. "My process, to be brief," continued the lecturer, "consists of making three negatives on color sensitive plates, which are exposed simultaneously in a triple camera, behind light filters, that are carefully adjusted to transmit to each plate just the kinds and amount of light that will cause the resulting negative to make a colored picture which, when combined with the other two colored pictures, produced in the same manner, will counterfeit the colors of the spectrum, or the colors and light and shade of any object. In order to accomplish this, each spectrum color that is not counterfeited by any one reproduction color must, of course, be made to act upon two sensitive plates in such a manner as will secure a definite and suitable combination of two reproduction colors in the final result. . . . All this can be accomplished in a most satisfactory manner by the employment of special compound color-screens, which are adjusted by experiment upon the spectrum itself in the manner originally suggested by me in a communication to the Franklin Institute in June, 1886. It is true, the amount of labor involved in the adjustment of these color-screens is something enormous, but when it is done it is done for all time." In his experiment, the results of which were shown, Mr. Ives used ordinary lantern slides from three negatives, projected on the screen by a triple optical lantern and light of three colors (which, when combined alone on the screen formed a nearly perfect white), each negative represented by the reproduction color counterfeiting that which had been most active in its production. After referring to the serious difficulty of "producing sets of negatives which bear a certain essential relation to each other in the matter of

exposure, development, and intensity," he continued: "Evidently a process may be perfectly correct in principle and yet depend for its success upon conditions so difficult to attain that it will fail in practice. I believe that this process, although essentially difficult, may, nevertheless, be so perfected that it will not only counterfeit all the colors of nature, but be practical and reliable in the hands of specialists who are properly instructed and equipped to operate it. If so, it will have very great value, even if applied only in the manner I shall show to-night, and for a single purpose, which will suggest itself."

#### THE SPECIMEN PICTURE.

"The proof of the pudding is the eating." I have not yet proved the value of this process. Although I commenced work on it eleven years ago, I have made only half a dozen full regular sets of negatives, and most of those were destroyed by fire at 715 Arch street two years ago. My recent experiments have been devoted to perfecting certain details only. The single example that I shall show you in my first and only attempt at a landscape, made more than six years ago, with comparatively crude apparatus and imperfect adjustment of color-screens. It is, however, a very remarkable picture, with colors scarcely less brilliant than they would appear in the ground glass of the camera, and substantially correct to the eye in every shade and detail. I hope some time to be able to show hundreds of such pictures, all better than this one. This illustration suggests one of the easiest and most profitable of the many possible applications of the method, viz., the illustration of popular lectures on travel like those of Stoddard and Wilson. I feel sure the time is not far distant when that much at least will be successfully accomplished."

The specimen shown by Mr. Ives consisted of a landscape, including several building, trees, meadows, etc. The set of three slides was so adjusted in the triple lantern that the outlines were exactly superimposed on the screen, and the effect of the three reproduction colors—the red passing through the slide of the negative made by means of the red rays, the yellow through

that made by the yellow rays, and the blue through that made by the blue rays—was a combination of all the colors in such a way as to very closely copy the effect of the landscape as it would be seen in the camera. The different shades of green in the grass and trees, the slate color of a barn and fence-rails, the white of the sky, and even the orange of a single branch of autumn leaves in an otherwise green tree were perfectly rendered.—*Public Ledger*.

### THE HUMOR OF IT.



A CASE OF COINCIDENT FOCI.—Mr. Catchall, a retired antiquarian of New York, having "embraced photography for diversion," purchased the *Quarter Century* to "get on to the thing anyway." He concluded from what he read that "lenses of various incidental and accidental foci must be procured in order to take in everything," and so he "procured a regular arsenal of objectives." Our artist caught him when starting out on his first stampede. His hat, vest, back, arms, and trowsers are bristling with cameras, while in one hand he holds a "detective" and in the other a larger camera with a "combined pneumatic arrangement" which "touches off any of them at will." All surrounding nature seems to be in a state of consternation at his approach, and yet he leaps forward uncon-

cerned, with all the enthusiasm of persistence. We wish him well. F. H. W



Mr. Rockwood gives personal attention to the posing of sitters from 9 to 4 o'clock, daily.

THE try (per)-plex (ity) of one of our neighbors is represented above. He is making the "third pose" of an example of "second-childhood" according to directions given by Mr. Rockwood for the production of the new and "fetching" picture. The scene will be understood by the intimidated.

A HAPPY photographer in London, whose mind "runs on poetry," contributes the following. (His name is Wright.) He begins with a well-known couplet of the Scottish Burns:

"Oh! wad some power the giftie gie us  
To see oorsels as ithers see us."

That power which Robie Burns would see  
Is furnished in photography,  
For by its aid each curious elf,  
Like others, soon can see himself.  
If this you doubt, to prove it quite,  
Go ask for *proof* from Mr. Wright;  
It's ten to one that he will give  
An answer in the *negative*!  
And when he shows you in the *carte*,  
You'll find a *foe-to-graphic art*.

MY DEAR MISTER EDDYTUR:

Them Books what you sent kum all rite  
and i have put in my spare time over  
Burnet's Art Essays.

I had done got Robinson's pictorial effects

in photography and had seen his Letters on Landscape addressed to an American Friend & et. et. So I got an old Spec Glass and fitted it into a cigar box and began to think i kud make a pretty fair picture. But after conning over Burnet i took and hid em all away; So I haint got any now.

But shall try agin when spring opens.

This brings me to a notis i seen in the FELIDELFA FOTOGRAFFER of Your Friend Robinsons promised picture carolling. (See Nos. 313 & 314.) Well I got a high pair of Stilts and awaited at fever heat for its arival. It kum at last (see 314); When I seed it my stilts drouped and i kum down to airth most unplesantly. Robinson may have rite that Pictorial efect in Fotograffy and he may have took that pictur. But by the great Horn Spoon with which Moses geathered the manna in the wilderness I'll be kussed if i kan harmonize the two.

Had he chucked them galls over in the left hand corner and given the nighest one a sort of a Shepherd's crook, turned her round and Sot her to Lookin after that Floers and sot the gall with the Lunch basket to Lookin up a place to spread out the eatin and then pulled the Left End of them sheep a Leetle around towards them. He kneed not have waited six years for them there Little skrub oak to have grown.

Now Mister Edditor Will you please put on your Specks and Look at it through your Minds eye and see if I have spelled out Burnet corectly.

Forever and Indefatigably yours,

ROBERT LINK.

Vulgarly called Bob Link or Chatter Box.\*

\* A very noisy Black and white bird that puts in an apperance about Planting time in this part of the world.

We are glad to know that this connecting "link" has proven himself able to observe so wisely "after Burnet." In making such pictures as "Carolling"—a mosaics, as it were, from several negatives, Mr. Burnet must sometimes be avoided a little. But we are sure that if "Robert" looks carefully he will see much following of Burnet in Mr. Robinson's splendid composition.

## UNANSWERED QUESTIONS.

AN amiable correspondent sends us a very curious "freak," and writes thus:

While you are in the phenomenon business please explain mine. I inclose a print from a negative and also from a contact positive from the same negative. Just above the horizon in the original negative is a distinct *positive* head, which has puzzled me. The plate was exposed in Wyoming last fall, and developed here a few months later, and has never been out of my possession since its original purchase.

Is it a coincidental cloud formation, a trick of some one at the Stanley plate factory, an optical phenomenon, or an old plate imperfectly cleaned?

The image seems too distinct for the first hypothesis; no motive for or humor in the second; as to the third, it is not my face, and there was no other white man in the vicinity to furnish a basis. Besides, I am utterly skeptical in the presence of apparent violation of the known laws of physics.

I am afraid our Stanley friends use old glass for their plates. This may account for their widely varying thickness, through which they burst my plate-holders, cut my fingers, and ruin my disposition to the extent of imperilling all my hopes of the future.

Did you ever cover yourself up with blankets in a cypress or mangrove swamp in the tropics and attempt to substitute a dozen fresh plates in your holders for those that had been exposed? If, yes, what did you say when you encountered a plate a quarter of an inch thick, broke your plate-holder and plate, cut your hands badly, forgot which plates were exposed, couldn't remember which was the sensitive side, and found that blankets *may* keep out the light and air, but *won't* mosquitoes? And would your language bear repetition in your church? The man who would keep cool there would freeze in Tophet."

Our answer is, Yes. What say our readers?—ED. P. P.

## WRINKLES AND DODGES.

Boys, don't spread your enamelled-back mounts all over the gallery, while mounting

prints, to keep them from sticking together. Go to the bookstore and get full-sized white blotters, and for cabinet size cut these across the sheet into three strips of equal size. When ready to mount the prints, place one of these strips on the table before you, and as you paste and rub down the prints, lay four, face down, on this, and four face up (backs to backs), then another strip of blotting paper, etc. When all are mounted, lay a weight on the pile and leave till morning to be "spotted." They will then be just damp enough to burnish well.—  
CHARLES BUTTERWORTH.

I HAVE been for years (I do not know if it is new or not) printing a card direct on the photos, as follows: I have the matter

### PERTAINING TO THE



As already announced, the time fixed for the next Convention and Exhibition of the P. A. of A. is July 10th (Tuesday) to July 14th (Saturday), at Minneapolis, Minn. Messrs. Wm. H. Potter and G. M.



Minneapolis Industrial Exposition Building.

printed on tissue-paper, varnished or oiled, and placed on the dark part of the negative with varnish. I print altogether, and the letters appear white on the positive.—R. GOEBEL.

Carlisle, a special committee appointed by the Executive Committee to visit Minneapolis and make necessary arrangements, report having engaged the Exposition Building, of which they send us the engraving

below. We gather the following additional points from a printed communication bearing Mr. Potter's name.

The photographers of St. Paul and Minneapolis received and treated the committee well, and will pull together to make a success.

The building is all one could wish for the purposes of the P. A. of A., and interest is asked in the Convention from all quarters.

The Executive Committee having also appointed a special committee to consider and report upon some "Benefit" plan, that committee reports as below for the consideration of the members until the Convention.

#### MUTUAL BENEFIT FEATURE FOR OUR ASSOCIATION.

##### *Report of Committee.*

Compare with your constitution.

In order that all concerned may have an opportunity to decide deliberately and intelligently upon the best provisions for a Mutual Benefit Department, under the auspices of the Photographers' Association of America, the committee submit in advance the following amendments and additional sections to the Constitution:

##### *Article I.—Section 5.*

The Association, under its Charter, shall embrace a Benefit Department, under which a fund shall be maintained and designated "The Photographer's Legacy," conditioned as follows:

##### *Article I.—Section 6.*

Upon satisfactory proof of the death of any member who has contributed to the beneficial feature of this Association, the Treasurer shall, upon the order of the President and Secretary, at once pay to the person named in his or her legacy certificate, or legal heirs, as many dollars as there are members in good standing in the Benefit Department at the time of said death; *Provided, however,* That one thousand (\$1000) dollars shall be the maximum amount paid on any one death.

*Sec. 7.*—All persons who are in full membership at the date of the passage of this section of the Constitution shall, on the payment in advance of one assessment of one dollar, be entitled to a legacy certificate.

*Sec. 8.*—Provided further, persons who may, hereafter, desire to participate in the Benefit Department, shall furnish the Treasurer, at their own expense, a certificate signed by a regular practicing physician, which shall set forth that the member at the time of application, is in good health and free from any organic disease which would endanger life, and is under fifty-five years of age.

##### *Article 2.—Section 2.*

And may participate in the Benefit Department on the payment of one dollar as one assessment in advance.

*Sec. 3.*—Except in case of participation in the Benefit Department, when a further sum of one dollar must be paid, as one assessment in advance.

*Sec. 7.*—No person shall be eligible to membership in the Benefit Department until he or she shall have first become financially a contributing member of the Association, and a failure to pay any assessment or assessments when due, shall forfeit membership in both departments of the Association.

##### *Article III.—Section 4.*

The Secretary shall not be entitled to any compensation accruing from assessments under the Benefit Department, but the Executive Officers may, if deemed just and proper, compensate the Secretary for any additional labor incurred on account or by reason of the Benefit Department.

*Sec. 4* in the Constitution as it now stands, changed to *Section 5*.

*Sec. 6.*—The Treasurer shall keep a distinct and separate account of the Benefit Department, and shall, upon receiving proofs of a death, notify each and every member, of the same, setting forth in said notice the former residence or place of business of said deceased, together with the date of death and cause thereof, as reported in the death certificate, which certificate shall be signed by the attending physician, or the undertaker who shall have had charge of the funeral of said deceased, and also by the legatee or heir making claim to the amount due on said decedent's certificate.

*Sec. 7.*—Assessments for each and every death occurring under the Benefit Depart-

ment, shall not exceed the sum of one dollar to each member in good standing in said Department; and thirty (30) days time from date of notice shall be allowed in which to pay such assessment, and any failure on the part of any member to pay the same within that time, shall forfeit all claims, benefits, and membership in, under, or against the Association, by the delinquent or heirs.

*Sec. 8.*—The notice of a death and of an assessment hereinbefore provided (*Article III., Secs. 6 and 7*), dropped by the Treasurer of the Association or his legal representative, in any post-office in the United States, shall be deemed a legal notice.

G. M. CARLISLE,  
C. W. MOTES, } *Committee.*  
W. H. POTTER, }

W. H. POTTER,  
Secretary.

INDIANAPOLIS, February 14, 1888.

## PRACTICAL POINTS FROM THE STUDIO.

NEW PHOTOGRAPHIC EXPERIMENTS ON THE SOLAR SPECTRUM.—Messrs. Trowbridge and Hutchins having obtained the photographic reproduction of the spectrum, divided by the electric light emanating from certain metals, such as aluminum, platinum, etc., then throw the solar spectrum on the same plate without disturbing the apparatus, so as to compare the lines in the most exact manner. To be certain, they say, of the existence of any simple body in the sun, it would be necessary to show the coincidence of a considerable number of lines of the element in question with the black lines of the solar spectrum, and for *oxygen* they do not find such a coincidence. As regards *carbon*, the lines near H coincide perfectly with the spectrum of this simple body, but in the green, and the blue, this spectrum does not exist. The same uncertainty exists for *lead*, *cerium*, *molybdenum*, *uranium*, and *vanadium*, but the coincidence is perfect for cadmium, bismuth, silver, potassium, lithium (the authors forgot to mention sodium), and to these they add for the first time *platinum*.

DANGER TO THE EYES IN USING FLASH POWDER.—It has been remarked that the rapid production of the intense light acts injuriously on the eyes of the operator, and several of our photographers who have recently made use of it to obtain at night the portraits of actors, singers, etc., protect the eyes by means of colored spectacles.

PHOTOGRAPHIC DECORATION FOR FURNITURE.—At the London Camera Club, Mr. W. A. Green called attention to the recent application of the carbon process to the ornamentation of parlor furniture. Here we have the photographer and upholsterer working hand in hand.

CAUSE OF BLISTERS ON ALBUMENIZED PAPER.—Mr. W. H. Sherman, of Milwaukee, thinks he has discovered the cause of blisters on albumenized paper. They are produced during the fixing of the image in the hypo bath, says he, and they are due to carbonic acid. Whence comes this gas which raises here and there this sensitive film? According to Mr. Sherman it is due to the action of the hyposulphite of soda on the albuminate of silver compound which, for each atom of silver, contains seventy-two atoms of carbon. This is, however, as the author admits, but a simple conjecture — *Moniteur*.

ELECTRIC ACTION OF THE SOLAR LIGHT.—Mr. J. Moser has found that the electro-motor force produced by the action of solar light on the chloride, iodide, and bromide of silver, is considerably increased when these compounds are plunged into a colored bath, in erythrosin, for example. The author does not say if the color has any influence.

TO STICK GELATINE PRINTS.—For this purpose I use exclusively polished ebonite plates, and to avoid impairing the brilliancy when mounting the print on cardboard, I am careful, when the photograph is on the ebonite and still damp, to wet the edges with mucilage. The gum dries with the print; later it suffices, when the print is detached from its support, to slightly moisten its edges in order to attach it definitely to its mount. — *L'amateur Photographe*.

MR. ERNEST BOIVIN gives the following formula for working with hydroquinone as giving the best results :

Distilled or Rain Water . . .	70 parts.
Solution of Sulphite of Soda at 30 per cent. . . . .	20 “
Solution of Carbonate of Soda at 30 per cent., or equal parts of Potash and Soda. . . . .	3 to 5 parts.
Hydroquinone at 10 per cent. in alcohol . . . . .	5 to 10 “
Citric or Tartaric Acid at Saturation . . . . .	a few drops.

The time required for the exposure is much shorter than with the pyrogallic acid and oxalate of iron developers.—*L'amateur Photographe*.

#### LAC VARNISH FOR GELATINE PLATES.

—To prepare a good varnish that will keep well it is necessary to make a judicious choice of the substances to be used, inasmuch as on this choice depends the quality of the varnish. If we wish to have a hard and adhesive varnish add Venice turpentine; this varnish becomes grumous when exposed to heat. It is better to use copaiba balsam or, still better, castor-oil. Castor oil is colorless, does not dry easily, and is almost insoluble in alcohol. The addition of linseed oil, lavender, elemi, or camphor, is not to be advised. The following figures may be used as a basis for the proportion of the substances :

Camphor from 5 to 8 per cent. of the resin used; castor oil from 5 to 10 per cent. of the resin used; copaiba balsam from 5 to 15 per cent. of the resin used; oil of lavender from 10 to 25 per cent. of the resin used; Venice turpentine from 10 to 50 per cent. of the resin used.—*L'amateur Photographe*.

### BURNET'S ART ESSAYS.

NEVER in the history of photography have its disciples had such opportunities for devoting themselves to its art aspect as they now possess. In former times the man of art instincts and tastes was handicapped by the consciousness of his inability to overcome with certainty the technical difficulties involved in the carrying out of his ideas.

But since dry plates of exalted sensitiveness and reliability have been introduced, he is relieved from all care on that score, and remembers the nitrate of silver bath and dark tent only as a dream of the past. The present, therefore, is a fitting time to supply photographers with the means of acquiring art culture, and the signs of the times indicate a strong desire on the part of many to acquire such art knowledge. To aid in this desirable, nay, necessary, branch of photographic education, Mr. Edward L. Wilson has had reproduced, by photolithography, the famous and valuable art essays of John Burnet, than which no better art tuition could be desired.

These essays are three in number, respectively: 1, Composition; 2, Light and Shade; and, 3, The Education of the Eye. The first was originally published in 1822, the second in 1826, and the third in 1827. They are profusely illustrated by examples from the great masters of the Italian, Flemish, Dutch, and other schools. The publisher of this capital reproduction of an excellent educational work is to be complimented on his enterprise in giving to the art world, and to photographers in particular, such *fac similes* of Burnet's works, essays which one may read and study again and again, and always return to with fresh zest and enjoyment. Photographers need an art training of this kind very badly still, although they are improving in this respect; there is yet much, however, to be achieved.

When these books were written photography had not entered upon even its incipient stage of existence, and yet if Burnet had been addressing an audience of the fraternity he could not have more fittingly selected his language. The opening remarks of the essay on Composition are pregnant, and go right to the point. Composition, he tells us, “is the art of arranging figures or subjects so as to adapt them to any particular subject. In composition four requisites are necessary: that the story be well told; that it possess a good general form; that it be so arranged as to be capable of receiving a proper effect of light and shade; and that it be susceptible of an agreeable disposition of color. The *form* of a composition is best suggested by the sub-

ject or design, as the fitness of the adaptation ought to appear to emanate from the circumstances themselves; hence the variety of compositions."

Each of the essays, as we have hinted, is copiously illustrated, and being skilfully photo-lithographed from the original copy give point to the valuable maxims of the teacher.

The compendium is well printed and strongly got up, and most certainly will repay the most careful study capable of being bestowed on it. We should have liked had space permitted of our giving a few more extracts, but we do better by recommending the reader to procure each a copy for himself. Price, four dollars.—*British Journal of Photography.*

### TO MAKE RUBY GLASS.

BY WM. BELL.

There was recently published in the PHILADELPHIA PHOTOGRAPHER a method for producing ruby glass (nitrate of silver and gelatine). I have worked out a practical formula, viz.:

#### No. 1.

Gelatine (Heinrich's)	. 150 grains.
Water	. 6 ounces.
Chloride of Ammonium	. 3 grains.

Soak for one hour, melt, and add No. 2, drop by drop, stirring with a glass rod.

#### No. 2.

Water	. ½ ounce.
Nitrate of Silver	. 30 grains.

To produce a very fine chloride of silver, filter through two thicknesses of flannel at a temperature of 100° F.; coat the cleaned warm glass with this, using one ounce of the compound for each 10 x 12 glass. A levelling stand must be used to preserve an even coating. All of the work can be done in white light. Dry the plates and expose to sunlight. A deep orange ruby glass is the result. It is very safe for all sensitive plates. [It is very perfect.—ED. P. P.]

### SOCIETY GOSSIP.

THE PACIFIC COAST AMATEUR PHOTOGRAPHIC ASSOCIATION (ROOMS 605 MERCHANT STREET, SAN FRANCISCO).—We are

still alive, and as interested in photography as ever. Your valued journal is received regularly, and our members devour each successive number as it appears.

We have now sixty members on our roll, and nearly all of them enthusiastic photographers.

The last meeting of the Association was very interesting, as we had Mr. Bellsmith with us; he is at present in the city demonstrating and introducing the specialties of the Eastman Dry Plate Film Co.

Mr. Bellsmith entertained us for about two hours, giving us an ocular demonstration of the film negative process, including every manipulation thereof except exposure: and also exhibited a number of positives made by the new transferotype processes on glass, porcelain, shell, wood, etc., which were very much admired. Mr. Bellsmith presented to the Association a number of 8 x 10 silver prints mounted from negatives of his own on American films; also an enlargement (20 x 24) on bromide paper. He also gave to each member present a film negative, and we believe quite a number are converted and won over to the "stripper" process, since Mr. Bellsmith's lecture; for he certainly proved that as good negatives can be made on films as on glass plates.

It is probable that we shall have a lantern night for members of the Association only, at the rooms, about March 1st, and it is proposed to ask Mr. Bellsmith to be present at that time and exhibit some of his slides made by the transferotype paper process. Should this actually transpire, I will report to you later.

The "lightning flash" business has struck California, and we are all hard at it. A number of fairly good negatives have been produced by our members, and we think that we shall be able to do better work after we get the "hang of the thing."

Two of our members have been experimenting with "Alpha" paper, and some remarkably pretty prints in red and brown tones have been exhibited at the meetings.

The undersigned would be pleased to correspond with secretaries of the other photographic associations regarding an interchange of lantern slides, prints, etc., and all

communications addressed to 605 Merchant Street, San Francisco, will be promptly answered.

GEORGE W. REED,  
Corresponding Secretary.

THE ACADEMY OF PHOTOGRAPHY (BROOKLYN, N. Y.).—At the last meeting an interesting collection of lantern slides was projected, and several of the members related incidents of travel and work. After the exhibition Mr. Wallace Goold Levison read a note on duplex shutters, which he will enlarge upon and give us for our next issue.

THE second joint exhibition of the societies of Boston, New York, and Philadelphia, will be held in Boston, May 7th to May 12th. For particulars address Edward F. Wilder, 50 Bromfield Street, Boston, Mass.

### PHOTOGRAPHIC LITERATURE.

BY H. S. KELLER.

"PHOTOGRAPHIC literature is a nuisance, and I don't want anything to do with it."

That was the opinion of an artist, given with more force than the above. He was at that time, some five or six years ago, a fine wet-plate workman.

"Most of the fellows who write articles for the photographic magazines are, as a class, amateurs who want to air their knowledge, and pose as great men before the practical workers like you and I. No; I never took a photographic periodical in my life, and don't intend to. When I commenced I made up my mind to learn the business thoroughly. I flatter myself that I've succeeded; and, mind you, without the assistance of any of your silly photographic literature."

I left him, perfectly satisfied that he would, in vulgar parlance, "get left."

Dry-plates!

Dry-plates!!!

DRY-PLATES!!!

Of course my old friend, the admirable wet-plate worker, only heard of dry-plates through an occasional dropped remark. His rival, a young man, with small means but a large amount of energy, began suddenly to spread his "ads" through the columns of the paper.

His short but terse "ads" read somewhat as follows:

Instantaneous Process!

Don't Wait for Sunshine. The *Art of Photography* has taken a long stride forward I Will Give Twenty-five Dollars to the First Baby whose Picture I Cannot Take. I use none but the new *Dry-plates*.

Blank, Artist.

What was the result? The old wet-plate man, he who scorned to read photographic literature, began to be sorely troubled. One day one of his very best patrons showed him a charming picture of his, the patron's baby, with a pug dog sitting upon his haunches, holding a pipe in his mouth, and a pussy curled upon a chair near by. Upon the back of the picture was his young rival's name.

"Nonsense," said he, as he posed over a wet-plate, "some one of those new-fangled ideas. He'll quit soon enough. I'll keep to wet-plates."

He did—too long.

After his very best patrons had left him, and gone over to his young rival, the old chap subscribed for the leading photographic magazines. He was astounded at the wonderful resources connected with dry-plate work. He is no longer the leader now. The young man who read up and kept posted has the cream. It pays to read photographic literature.

### A PRACTICAL GUIDE TO PHOTOGRAPHIC AND PHOTO-MECHANICAL PRINTING PROCESSES.

THE above is the title of the newest candidate for the favor of the readers of our profession and art, and comes to us from England. The author is Prof. W. K. Burton, of the Engineering College, Imperial University, Tokio, Japan.

About a year ago, it will be remembered that Prof. Burton passed through our country on his way to Japan. He had been a contributor to the *Photographic Times* for some months back, and had, by his thoroughly practical and enjoyable papers, won so many friends in America, that he soon found, when he arrived in New York, that

he was not a "stranger" here, though "in a strange land." He was made the photographic guest of the town during his sojourn. He was feted, dined, and sociated to his heart's content. His portrait served as the embellishment for an issue of the *Times*, and all were sorry to see him depart. But he has continued his valuable contributions, and has made a welcome for his new work, an edition of which we have just received from Messrs. Marion & Co., his London publishers. The *Photographic Times* has said of Prof. Burton, viz.:

"The characteristic of Prof. Burton's style is its absolute clearness; there is no mistaking his reasoning; another feature of his work is, that all, or nearly all, his contributions are descriptions of actual experiments which he has performed, as distinguished from mere theorizing."

After this we need not assure our readers that Mr. Burton's work is a "*Practical Guide*" in every sense of the word. His long experience makes it impossible for what he writes to be otherwise.

The work has 354 pages and 46 chapters, a list of which is given in the advertisement. It is very low-priced at one dollar. It has covered the ground completely in most instances, the exception, if any, being in the photo-engraving processes. Of these the author does not try to treat exhaustively. It is most largely devoted to the printing on albumen (nearly 200 pages), and bromide papers, and comes nearer to taking the place of Hearn's *Practical Printer* than any book yet issued. It should be in every printing-room, convenient to all. The Americans are the best printers in the world, but there is much here to learn. We shall make some excerpts from *The Practical Guide* soon. It came too late for us to do so now. The enterprising will secure it first.

### PHOTOGRAPHIC FACTS AND FANCIES.

#### NECESSITY FOR SLOW DEVELOPMENT.—

At Bristol,\* Mr. Brightman read an excellent article "On the Advantages of Slow Development." Among other things he

called attention to the incomplete directions which accompany the plates coming from the hands of manufacturers. These directions tell us to use certain quantities of pyrogallie acid, of bromide of ammonia, and if the image should come too quickly, to add a greater quantity of bromide. But, according to the author, the plate is then already half lost. It is especially necessary to add the ammonia very gradually, a few drops at a time, for, except in special cases (for example, in the case of professional photographers, working daily with a good light, well controlled), one can never be sure that the time of exposure has been exactly right.—DR. PHIPSON.

#### STRENGTHENING COLLODION CLICHÉS.—

M. Le Breton gives the following process for strengthening collodion clichés. He fixes the cliché with cyanide and strengthens it with bichloride of mercury and ammonia. Another fixing with iodized cyanide is necessary to remove the veil. By this means a cliché is obtained with a very black background and very translucent whites.—*Moniteur*.

GLASS silk is obtained by winding fine threads of glass in fusion, on rapidly rotating and heated cylinders. In the microscope the threads are as fine as those of silk, or the fibrillæ of cotton. They break more readily than the latter, but are excessively supple. From the inalterability of the substance it is very well suited for filtering acid or alkaline solutions, even concentrated, and various other substances, such as nitrate of silver, albumen, collodion, etc. It affords great rapidity of flow, with good filtration. It is preferable to amianthus, which, from the arrangement of its parallel fibres, cannot be formed into a flexible ball, and which lets fragments pass that float in the liquid. For analysis it is very advantageous, allowing of a ready determination of insoluble matters deposited; also, by calcination and fusion of the glass may be found the volatile principles fixed in the passage of the liquid, unmixed with empyreumatic products. Glass is capable of fine filtration, either by the winding process cited above, or by means of a blast, in

\* See PHILADELPHIA PHOTOGRAPHER, page 144.

which latter case it assumes a flocculent quality.—*The Pottery Gazette* (London).

**CORK POROUS POTS.**—M. Stein, of Bonn, has introduced a process for making porous pots and jars of powdered cork united by naphthaline. The powder mixed with naphthaline is moulded into shape, and dried by a slow heat in a special oven. By this the excess of naphthaline is driven off, and collected for use over again. The naphthaline is said to prevent the formation of deposits inside the ware, which is chiefly intended to supply the place of the ordinary clay pots used in batteries as porous separators of the solutions. — *The Pottery Gazette* (London).

**AN ENLARGED FACT.**—I am making large pictures with Eastman's bromide paper, and also do the finishing. I am having splendid success with the paper. What beats me is that, especially in the South, hardly any photographers are using the bromide paper. I can't see how a photographer, who ought to be able to judge of the printing quality of a negative, can make many failures after a very short practice with the paper. If I am very much in doubt about a negative, I take a small piece of paper and make a trial exposure. I most always start with old developer and end with new; in this way I can guard against overexposure. It is better to have plenty of time than not enough, as an undertoned print is no good at all. H. MANDERFELD.

HOUSTON, TEXAS.

**MICROSCOPIC PHOTOGRAPHY.**—Recently Mr. W. T. Coventon, member of one of our photographic societies, was perfectly successful in obtaining a reproduction on a plate of the mouth of a small gasteropod mollusk (*buccinum*), and he showed to his friends several positive prints made from this plate. The negative was obtained by means of an ordinary microscope, from which the eyepiece had been removed, without any special arrangement. A difficulty which this photographer had to contend with is the reflection of the light upon the interior sides of the tube of the microscope, which produces the effects of halo on the plates. To avoid this trouble, it has been recommended to line the interior of the tube with black velvet, which will absorb all the traces of light. This operation, however, would be rather difficult, and in the great majority of cases, it is sufficient to blacken the inside of the tube with India-ink or lampblack.

**RETOUCHING UNVARNISHED GELATINE NEGATIVES.**—Powder a small piece of rosin; sprinkle a glass plate with the powder obtained, mixed with about one-third of its volume of segar ashes, so as to render the rosin less viscous, less glutinous. The mixture is placed in a clean little gauze bag well washed, and with it touch the plates that are to be retouched. It suffices to take a very small quantity of the powder on the end of the finger and to pass it lightly over the places that need retouching, to render the coating mat and apt to receive the pencil.—*Phot. Archiv.*

## Editor's Table.

A STILL further surprise and delight comes to us from Mr. WILL H. MOWREY, Milford, Mass., in a series of  $6\frac{1}{2} \times 8\frac{1}{2}$  views of Skaneateles Lake, N. Y., and neighborhood. They are full of the poet's feeling—full of delight for the poet. The natural clouds are wonderfully caught. "Rocky Point" with its old ruined pier, is full of "Desolation" and "One Mile Point" suggest "Even-

ing Rest" in every tone. One of the most charming of all the views is "The Old Toll-gate." The trees adjacent with their cast shadows upon the old toll-house are exquisitely caught. Our picture will be selected from these soon.

MR. K. T. SHELDON, West Winsted, Conn., has again brightened our office collection by a

series of superior 5 x 8 landscape and cascade views. Artistically chosen; exactly exposed; technically perfect—every one of them. Is it not a wonder when we can catch a roaring cascade and the lovely details of the trembling ferns near by, all in one exposure—all with one carefully used developer? "A Departing Freight Train" is one of the finest of this series. The locomotive is pushing through the banks of snow, and overhead is a great long line of smoke rolling back under the light with grand effect. Wonderful photography!

THE Moss Engraving Co. has just issued a book of Mosstype specimens which goes far ahead of anything of the kind that has yet been done. The cream-tint cover is embellished by a symbolical design 8 x 10 inches in size, and, of course, a beautiful female head is the chief attraction. Under the cover are splendid reproductions from nature, from paintings and from drawings—nearly fifty in all, of all classes of subjects—interiors, portraits, landscapes, merchandise, architecture, and so on. Any enterprising photographer who finds his productions too costly "for business purposes" can, with the help of the Moss Engraving Co., meet almost any demand upon him for pictures. We have made our readers so familiar with the Mosstypes already, that no word of praise is needed here. There is continual improvement in them.

SCOVILL'S catalogue of albums and publications, just issued is one of the prettiest and handiest of its class. The reading photographer and the photographer who cares to systematically keep proofs of his best efforts in good shape, will profit by a careful consultation with this new catalogue.

MR. WM. DEAN HOWELLS, the favorite American author, during a late sojourn in Buffalo, sat for several portraits to Mr. W. J. Baker, the author of the leading article in our last number. Nothing could be more excellent, or delineate the character of the distinguished writer more faithfully, than these pictures. We hope to engrave one of them for an early issue of our magazine, to be accompanied by an article on "Normal Lighting," by Mr. Baker. We may expect something very helpful and interesting.

MR. HARRY S. SUTTER, Milwaukee, Wis., has favored us with a number of cabinets of his dainty little daughter in various characters. The sweetest and best are those dressed as a little newsboy, out in the snow. With a little

subject so heartily in sympathy, how could the results be otherwise than charming?

PICTURES RECEIVED.—A lovely group of three children has been received from Mr. FRITZ, Lambertville, N. J. Very perfect.—Prof. KARL KLAUSER, Farmington, Conn., by interposing a piece of fabric secures the effect of an old painting in his prints. An example before us is very successful in effect, the subject, a pretty Miss, being managed rather "old school," to help.

THE best cattle piece we have received for many a long day, comes to us from Mr. J. POLLARD, Tilsonburgh, Ontario. The subject is a quiet meadow near the edge of the wood where the cattle are resting—some standing, some down upon the ground, and posed in such delightful variety that we do not believe John Burnet *could* have passed them with his camera or pencil, had he come that way. We shall have more to say about it presently, as we hope to share the pleasure it has given us with our readers. Mr. Pollard has placed the negative at our disposal.

*Photographic Mosaics*, 1888, is going rapidly. Secure your copy.

"A GREAT DEAL OF GOOD."—MR. J. LANDY (the holder of the Blair Cup) writes us: "Your Hiawatha illustrations will do a great deal of good. Keep the good work up. I believe we will have more art hereafter and not so much technique. Illustrating subjects from the poets will do more to advance our art than all the display of portraiture that has been given us in the past."

"How any photographer can make up his mind to get along without Burnet's *Art Essays* is utterly beyond my comprehension."—DR. J. R. HAYNES, Indianapolis, Ind.

OF *Quarter Century*, Mr. THOMAS PATTON, Jacksonville, Texas, writes thus: "I did not think I would need it, as I had *Photographics*. But I bought it, and my pocketbook is heavier by a good many dollars already, from having it."

MR. W. H. WALMSLEY will begin his paper on Photo-micrography in our next number.

PHOTOGRAPHIC perspective, so little understood by landscape photographers, will be ably

treated in a paper with illustrations, in an early number of our magazine, by Mr. A. C. CAMPBELL.

We hope to present the first instalment of Mr. TREAT's admirable art lecture in our April issue, and Mr. W. E. WOODBURY, of London, will tell us all about the photo exhibition at the Crystal Palace.

MISS JENNIE GOSLINE, New Brighton, L. I., has favored us with a cattle piece composition which shows excellent judgment and artistic choice.

THE Blair Camera Co. is rapidly extending its influence and its usefulness and as rapidly increasing its forces. One of the latest and best accessions of power is in the engagement of Mr. H. G. THOMPSON at the Chicago branch. Mr. Thompson has been long popular in Chicago, and his friends will be glad to greet him at his new post. We wish him abundant success.

ANOTHER MYSTERY.—MR. A. COATES, Benton Harbor, Mich., says: "Some years since I had a similar experience as 'Puzzled Photographer' in the January number (page 18), and 'Amateur' in the last number (page 99). It was with the wet plate, and a street scene. The painted sign showed clear through the body of a man though there was no apparent movement of the man himself. I never could account for it any more than the rest of them can."

*Quarter Century in Photography.*—A handsome book of nearly 400 pages, from the pen of one who is already known to many of the readers. Mr. EDWARD L. WILSON, who tells us month by month what is going on among the photographers of America, has produced in this volume one of the best and most original works upon photographic art which we have ever seen. It is constructed upon a somewhat new plan. The body of the work is printed in large type, which the reader is recommended to master before attacking the copious notes in smaller type which are printed beneath. The large type words are Dr. Wilson's and the notes are gathered from nearly two hundred authorities, with the names and initials appended to each. The plan is a good one, and will be appreciated by the practical worker. Mr. Wilson has the gift of writing what would be very dry matter in other hands in a fresh and interesting manner, adorned frequently with touches of humor which

give his work much charm. His extended experience in all branches of photography cause him to represent a good authority upon the art, and the beginner, as well as the advanced student, cannot be in better hands as a guide. With regard to the notes, which, by the way, are illustrated—and well illustrated, like the rest of the book—they are evidently the outcome of most diligent research. One is often apt to regret that the little recipes, experiences, and dodges, which form brief paragraphs in photographic literature, should be too often forgotten in the limbo of back volumes. Mr. Wilson has preserved such items for us in the notes to his *Photographics* and *Quarter Century*, and for this reason alone the volume should find a place in every photographer's gallery.—*L. I. Record.*

MR. DONKIN's paper in our last issue is creating a *renaissance* of the stereoscopic view among our foreign contemporaries. Our smart apparatus makers are already preparing a large stock of stereoscopic cameras "for the Spring trade." Surely, our art makes nothing more satisfactory than a stereoscopic picture—when viewed in a good stereoscope.

PATENTS.—MESSRS. HOWSON & SONS, Philadelphia, Washington, and New York, have just issued a new edition of their work on patents. All who have, or expect to have, interest in patents, should consult this admirable book. It is full of special instruction.

PHOTOENGRAVING, photoetching, and photolithography. We have the largest and best work ever published on this subject in press and will have it ready in April. It will be complete.

RECONSTRUCTION.—The Eastman Dry Plate and Film Co. announce that the repairs to their factory buildings are completed and the buildings ready for the erection of the new paper coating plant. The new and improved machinery has been all erected and every indication points to a resumption of paper coating by the time our readers see this. Work in the enlarging department was resumed March 12th.

MR. FRANK THOMAS although a photographer of the old N. P. A. membership, keeps abreast of the times. He is now at Springfield, Mo., managing the business of the late G. W. Sittler. He calls our magazine the "Developer" and

says: "It gets better and better, and is surely improving with age, as there is more snap and brilliancy to it." We are by no means fossilized or oxidized yet and are glad we feel it.

SOME pictorial surprises for our increasing list of readers are in preparation.

A RETOUCHING bureau has been organized at No. 12 Tibbits Block, Utica, N. Y., by Messrs. H. S. KELLER and C. C. JARVIS. Mr. Keller is well known to many of our readers and Mr. Jarvis, he says, is a first-class, experienced workman. The other artists employed are also experienced workmen, having served some of the best photographers in the country. Their work will be guaranteed first-class in every particular. Such a bureau will prove a very acceptable convenience.

MAGNESIUM cabinet portraits of excellent quality have been sent us by Mr. J. H. STRAUSS, of St. Louis, Mo. Mr. Strauss was particularly successful in the management of the light. We hope he will tell us all about it soon.

THE photograph of little Frankie Wilcox which appeared on our first page a month ago was from a cabinet picture made by Mr. FRANK EDSALL, 248 West 125th St., New York.

"LIGHTNING FLASH" is the name given by Messrs. BUCHANAN, BROMLEY & Co., Philadelphia, to their new magnesium compound. They supply directions for its use and offer \$25.00 in gold, to be awarded at the Convention, at Minneapolis, for the best picture made at night with their lightning flash compound, entry for competition free to the photographers of the world. Printed instructions will be furnished upon application. Keep in the light.

NEW HAMPSHIRE entire takes the PHILADELPHIA PHOTOGRAPHER. Here is a voice from there.

CONCORD, N. H., Feb. 28, 1888.

Enclosed find check for which please send me Burnet's *Essays*, *Mosaics* 1888, Robinson's *Pictorial Effect*, and continue my subscription to the PHOTOGRAPHER for 1888.

My "creed" demands all the photographic literature which it can digest, and in a handy recess opening out of my operating room I have

shelves well filled with all the standard works to date, including bound numbers of the PHILADELPHIA PHOTOGRAPHER, since my first year in business. My success, which has been wonderful (to me), I owe to the above.

I shall, April 15th, move into new quarters, which are being elegantly fitted up for me, and one of the cosiest rooms in my new studio will be my "library."

H. C. BAILEY.

E. H. BERLIN, of Blairsville, Pa., is content with his Burnet's *Essays* and writes thus:

"Burnet's *Essays* came to hand promptly, and makes very pleasant reading; the valuable hints on light and shade, composition, perspective, etc., cannot fail to benefit any one interested, either, in *seeing*, or *making* pictures. You are certainly entitled to the thanks of the fraternity for bringing this work within reach; accept mine."

ANOTHER honor has come to Mr. H. McMICHAEL, Buffalo, N. Y. He has been awarded a special silver medal by the Photographic Society of India! His co-medalist is Mr. H. P. ROBINSON. Good. Mr. McMichael now has a high national reputation and is bound for a world-wide one.

1886 February numbers of this magazine are still wanted at this office. A copy of 1888 *Mosaics* will be given for each copy sent us.

AUGUST 1881 of the PHILADELPHIA PHOTOGRAPHER is wanted. We will give 1886 and 1888 *Mosaics* for a copy.

A GOOD COMBINATION.—By reference to our advertisements it will be seen that two of the great supply houses of Philadelphia have been consolidated into the WILSON-HOOD-CHEYNEY Co., Limited, with headquarters at No. 910 Arch St. This move will prove to be a great advantage all around and we wish the new corporation much prosperity. The officers combine rare talent and capability for their work, and bear an enviable reputation in the fraternity. With their machinery combined they will be able to meet the demands upon them better and to sell at great advantage to their long line of patrons. Mr. John G. Hood is Chairman, Mr. W. D. H. Wilson, Treasurer, and Mr. J. P. Cheyney, Secretary.

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. ~~as~~ We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

**MAKE OUT YOUR OWN BILL,** and remit cash with your advertisements, or they will not be inserted.

**A RARE CHANCE.**—Being desirous of going abroad, I wish to dispose of my gallery. It is one of the finest and best equipped in the Northwest. Centrally located, opposite the Post Office and the largest dry goods house, in fact, the best locality for doing a first-class local and transient business.

The studio is on two floors 20 x 80, has two skylights—top and side—fourteen feet square, facing north. About 35,000 negatives which yield quite a handsome revenue annually.

Will also dispose of my house, lot, barn, horse and carriage, etc., situated within twenty squares of the gallery in the best resident portion of the city. Population about 200,000.

Those meaning *business* will please direct for particulars

HARRY S. SUTTER,  
Milwaukee, Wis.

OFFICE OF WILSON, HOOD & Co.,  
910 Arch Street,  
PHILADELPHIA, March 1, 1888.

DEAR SIR: We beg leave to announce that we have formed a partnership with Mr. Joseph P. Cheyney, and that the style of our firm has been changed to Wilson-Hood-Cheyney Company, Limited.

We have, for the past twenty-three years, served you faithfully, and we now solicit a continuance of your patronage for our company, feeling sure that we can give you better service than ever before.

With our best wishes for your prosperity and asking yours, we remain

Very respectfully yours,  
JOHN G. HOOD,  
WM. D. H. WILSON.

**FOR SALE.**—The only ground floor gallery in the city of Lebanon, Pa. Good location, nicely fitted up and having a good trade. Other business, reasons for selling.

E. E. HAUER,  
142 N. 8th St., Lebanon, Pa.

Get Wilson's "Quarter Century in Photography," \$4.00.

PHOTOGRAPHERS doing business in Central New York have their attention called to the new Retouching Bureau recently opened in Utica. The gentlemen in charge are artists of ability who guarantee first-class work. Their prices are reasonable, and they respectfully invite photographers to write for particulars or send negatives for retouching. Coloring also done for the trade.

H. S. KELLER & C. C. JARVIS,  
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**VIOLET LIGHTNING FLASH.**—(Brutum Fulmen.) This compound is made by a new formula, and produces the most powerful actinic light yet discovered. It contains neither acid, chlorate of potash, nor animal charcoal. It oxygenizes more rapidly than any flash compound heretofore offered, and may be used on card-board or glass with safety.

Twenty grains is quantum sufficit for an ordinary flash (instead of forty to sixty grains, as stated on our copyrighted directions). According to subject, distance, quality of lens and rapidity of plates used, vary the above quantity. A twenty-grain measuring-cup is sent with every bottle. Handle with care.

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442 Fulton St., Brooklyn, N. Y.

## BUY BURNET.

OFFICE OF J. P. CHEYNEY,  
336 Arch Street,  
PHILADELPHIA, March 1, 1888.

DEAR SIR: Having, with Messrs. Wilson, Hood & Co. decided to consolidate our businesses, and believing that by such consolidation we can still better serve our patrons, assuring you that you will meet with as cordial treatment and determined effort to merit your favor in the future as in the past, I do most earnestly solicit your continued patronage for the new firm of Wilson-Hood-Cheyney Company, Limited, 910 Arch Street, Philadelphia.

Respectfully yours,  
J. P. CHEYNEY.

THE PLATINOTYPE for Photographers, Solar Printers, and all Copyists. Platinotypes are permanent, and a license to work the process costs very little. Send ten cents for sample portrait and book of instructions.

WILLIS & CLEMENTS,  
1112 Hunter St., Philadelphia, Pa.

WILSON'S *Quarter Century in Photography*; a collection of hints on practical photography, which form a complete text book of the art. By Edward L. Wilson, editor of the PHILADELPHIA PHOTOGRAPHER, and author of Wilson's *Photographics* and *Photographic Mosaics*, published by the author, 853 Broadway, New York.

Mr. Wilson's long experience in the art of which he writes, and his special training as an editor of the leading American magazine devoted to photography, give him special fitness for the preparation of a text book of this kind. A quarter century ago Mr. Wilson entered the business as an employé of Mr. F. Gutekunst, of this city, and a year afterward began the publication of the PHILADELPHIA PHOTOGRAPHER. He has apparently thought of nothing else but photography during the last quarter century, and in this book condenses and puts in good shape all that he has learned on that subject from his own experiments, experience, and study and from the contributions of the most eminent photographers of the world to his magazine. It may be said, without exaggeration, that the resultant book is a library in itself, sufficient to the needs of most photographers. Mr. Wilson is a practical man, and, though he treats the subject in a systematic way, does not overburden it with details that, however interesting to the chemist, are simply confusing to the working photographer. The book is full of useful hints and profusely annotated from the works of other authors. It is also liberally illustrated, and may safely be commended as the best single book for either the amateur or professional photographer that has yet appeared.—*Philadelphia Ledger*.

BUY BURNET.

JUST RECEIVED FROM ENGLAND,

PROF. W. K. BURTON'S NEW BOOK,  
*Practical Guide to Photographic and Photo-mechanical Printing Processes.*

Price, \$1.00.

MARION & Co., Publishers, London.

The well-known author says, "The object of this work is to give practical instructions in the working of all processes which are in actual everyday use at this date."

The *Amateur Photographer* (London, Feb. 3d) says, "Any matter from the pen of Prof. W. K. Burton (of the Imperial University, Tokio, Japan) deserves and commands attention by all workers in photography. . . . We are sure it (this book) will be their constant reference-book."

Mr. Burton's capital papers in the *Photographic Times* have made him very popular in America, and his book will prove welcome to his many friends here. I have just received (too late for review) an edition for this market. Copies mailed on receipt of price.

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M. H. ALBEE, scenic artist, studio No. 4, Central st., Marlboro, Mass. Send for samples and prices of backgrounds.

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SECOND EDITION.—NOW READY.

The *Photo Times* says: "The second edition, rewritten and enlarged, of this popular handbook for crayon artists, has recently been issued. The first edition of this book being small and published rather as an experiment, many important points on the subject had to be treated briefly. But that edition meeting with such a warm reception and selling so rapidly, the author resolved to enlarge the second edition and give his readers the benefit of the knowledge which he had since gained of new materials and a fuller description of his methods of handling them. The little work treats solely of bust and vignette portraits, and its aim is to assist young artists who are struggling alone beyond the reach of competent teachers. After an introductory confidential chat with the students, we have chapters on the Solar Print, Crayon Materials and How to Prepare them; the Crayon Print, Interlining and Retouching; Hair and Beard; Drapery; Background; and Concluding Remarks."

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TO PHOTOGRAPHIC MERCHANTS.

NEW YORK, September 1, 1887.

GENTLEMEN: We have now opened a *New York Depot* for the benefit of our Eastern patrons. From this depot orders will be delivered to any New York Freight, Express, or Steamboat office. Address M. A. SEED DRY PLATE Co., No. 2 Bond St., New York. A. R. HUISKAMP, Manager.

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As a printer and toner, I have been ten years in the business and can give the best of recommendation. Louis Mehl, 349 East 23d street, New York.

By an operator in a first-class studio, or if desired would assume entire management. References as to competency and ability furnished. Address Photographer, 37 S. 18th st., Phila., Pa.

By a retoucher, first-class and well recommended, would like a steady position at once, wages reasonable, correspondents solicited. Box 78, Unionville Centre, Union Co., Ohio.

By a young man who is efficient in all department, will furnish samples if desired. H. W. Saunders, Alford Centre, N. Y.

By a first-class printer and toner; can retouch and generally assist in gallery work. Best of references. New England preferred. C. L. S., Lockbox 512, Brattleboro, Vt.

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CHAPTER III.—General Remarks on Contact Printing.

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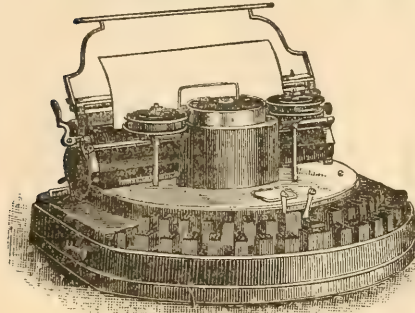
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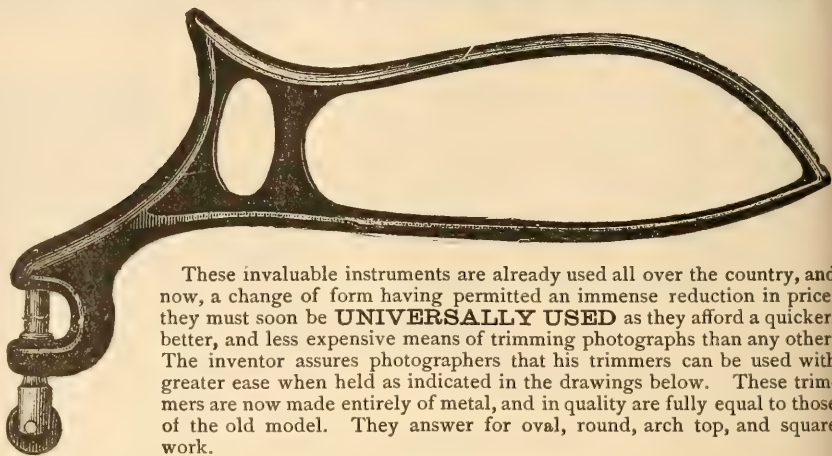
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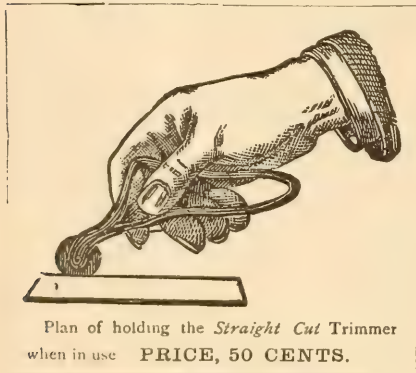
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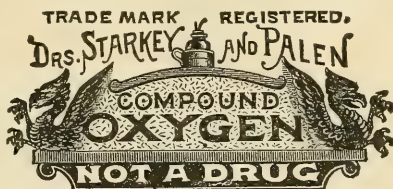
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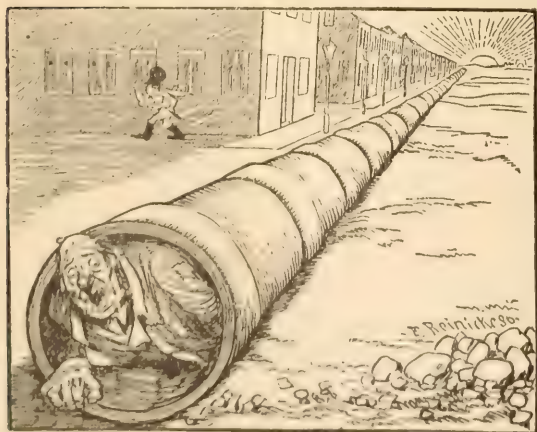
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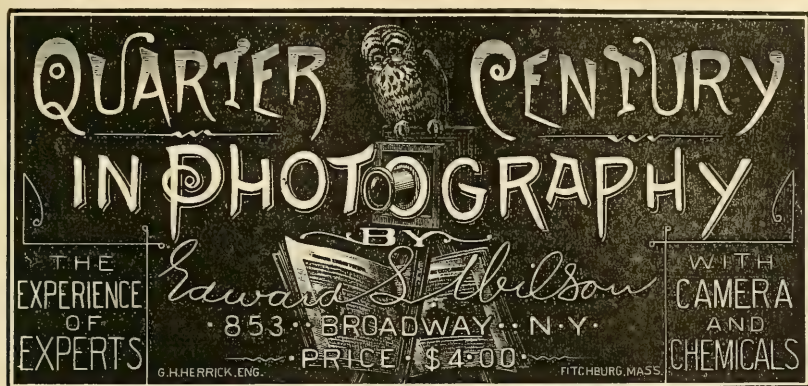
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QUARTER CENTURY is illustrated with about three hundred and fifty engravings, and as regards print, paper, and binding, deserves no less praise than on account of the usefulness of the matter.—*London Photographic News*.

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**JANUARY 21, 1888:** Burnet's Art Essays and their Use to Photographers, by E. K. HOUGH. The Texas Association. Why Have Some Negatives Thin Edges? Combinations of Silver Chloride with Other Metallic Chlorides, by M. CAREY LEA. How About Our Work Now? by AEM. DE SILVA. The Open Corner. Some Light on the Subject. Mosaiciana. Our Picture. Lead Strengthening, by EUGENE HINLY. Developing Properties of the Double Salt of Protochloride of Copper and Chloride of Ammonium. Facts and Fancies. A Quarter Century in Photography, by LUKE SHARP. Experience a Dear School, by THOMAS PRAY, JR. Notes from London, by T. C. HEFORTH. Society Gossip. The World's Photography Focussed. Pertaining to the P. A. of A. Editor's Table. OUR PICTURE—"Carolling." By H. P. ROBINSON, Tunbridge, Wells, England.

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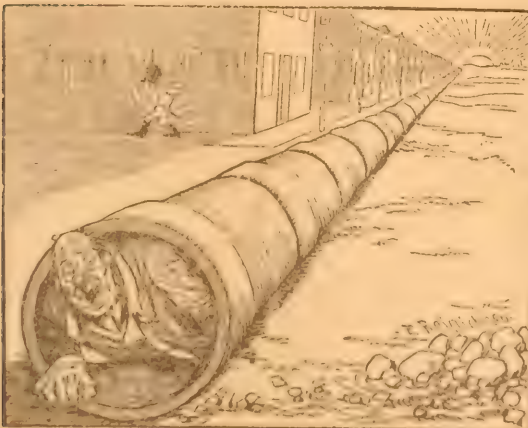
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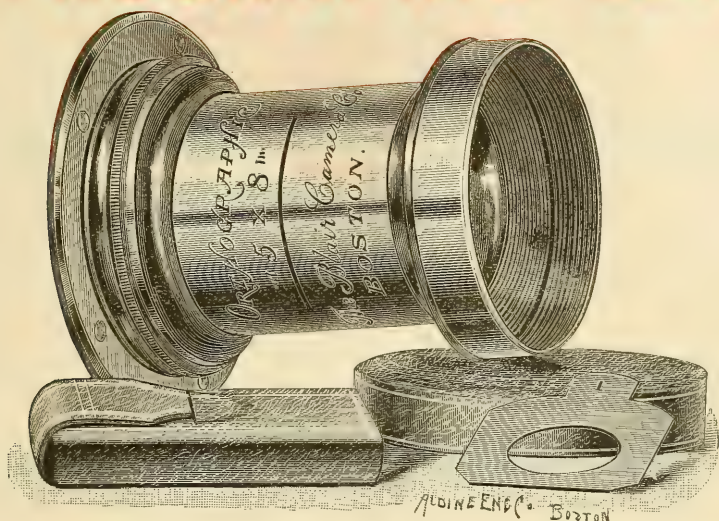
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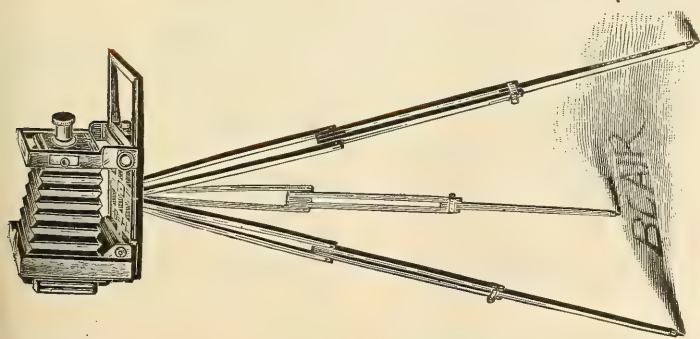
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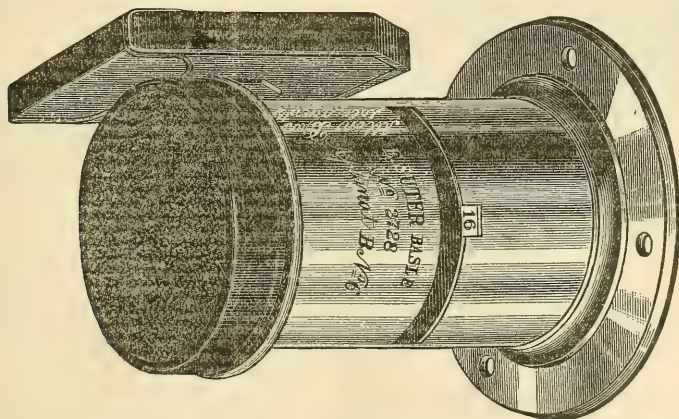
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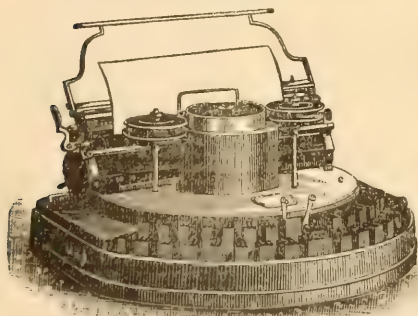
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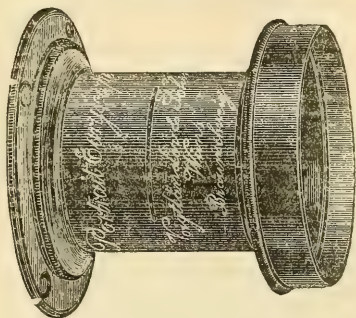
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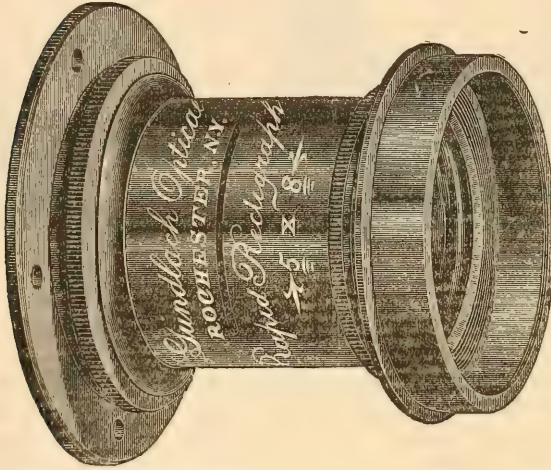
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5	10 x 12	8 x 10	2	13 1/2
6	11 x 14	10 x 12	2 1/2	15 1/2
7	14 x 17	12 x 15	2 3/4	17 1/2
8	17 x 20	16 x 18	3	20
				22
				24
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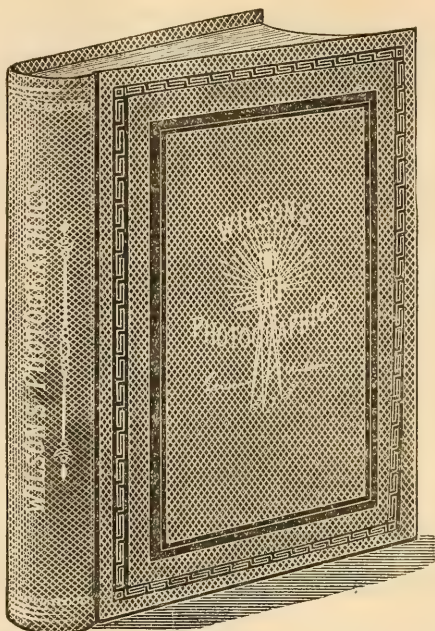
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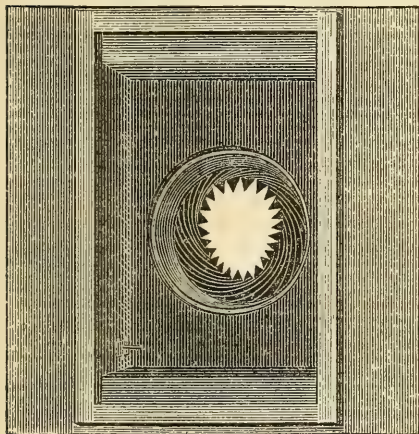
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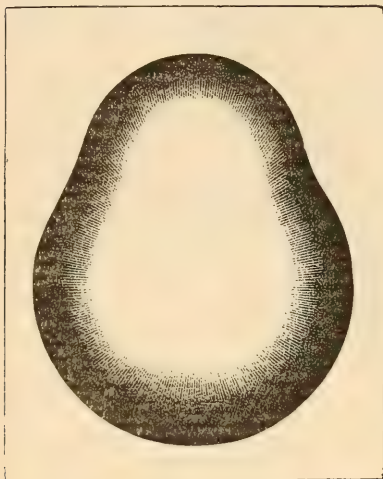
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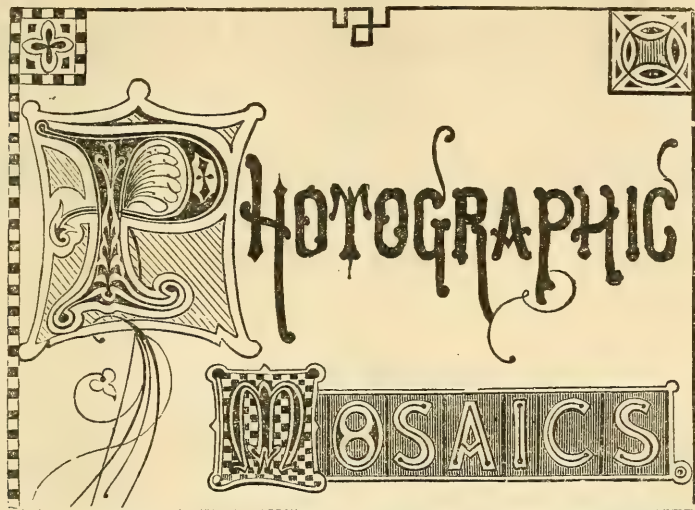
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**PHOTO-MICROGRAPHY FOR  
BEGINNERS.**

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**INTRODUCTORY.**

AT the risk of repeating an oft-told tale, I cannot refrain at the outset from once more alluding to the difference between a photo-micrograph and a micro-photograph, as recognized by the best modern authorities. For many years, photographs of microscopic objects greatly enlarged, as seen under the microscope, as well as microscopic photographs of any subject, of proportions so minute as to require a magnifying lens to render them visible, were alike known as micro-photographs. The latter of these, or true micro-photographs, are familiar to most persons, having been made in vast quantities and sold all over the world in the shape of "charms" of various forms. They consist of a Stanhope lens flattened at one end, upon which is mounted a photograph of microscopic proportions; generally copies of pictures, or familiar verses from popular authors, the Ten Commandments, etc., which can be easily seen or read by looking through the magnifying, or convex end of the lens. Many thousands of these pictures have also been furnished, mounted upon the usual microscopic slides (3 x 1 inches); and these may be found in the stock of opticians everywhere. They are examined as ordinary microscopic objects, by being placed on the stage of a compound microscope, and are usually intended for medium and low powers

only. Some, however, are wonderfully minute. One in my cabinet (the Lord's Prayer, made by W. F. Langenheim, of Philadelphia, more than twenty years ago) is contained in a space the one ten-thousandth part of a square inch, and requires a power of nearly one hundred diameters to read it; yet the silver deposit is so exquisitely fine that even this power does not separate the particles, each letter appears as a homogeneous black line.

These micro-photographs, however interesting or beautiful, are of no practical value, and are only noticed here in order to point out wherein they differ from a photo-micrograph, which, as defined by *Worcester* and the *Imperial Dictionary*, consists of an "enlarged representation of a microscopic object, produced by throwing its image through a combination of lenses upon a sensitized plate." The growing importance of this subject, and the confusion arising from calling such widely varying things by the same name, led to this distinction, now recognized by the most eminent authorities; and whilst regretting that what we know as a photo-micrograph, could not have received at the outset the more euphonious title of micro-photograph, we must be content that the distinction has been made and settled.

Photo-micrographs, however unfamiliar to the general public, are by no means a novelty. As early as 1845, *Donné*, a French observer, published a work on *Microscopic Anatomy*, the illustrations of which were copied from daguerrotypes of the objects, made by means of a solar microscope. Later,

great progress was made in this direction by the use of wet collodion plates, through the labors of Dr. Maddox and J. B. Dancer, in England, and Gerlach and others in Germany. Still later, the magnificent work of Dr. J. J. Woodward, U. S. A., at the Army Medical Museum, Washington, attracted the attention and admiration of the whole scientific world. His superb photographs never have been, and probably never will be, surpassed, since they are well nigh perfect in all respects. But Dr. Woodward was an exceptional man, his skill as a manipulator of the microscope was unrivalled, and with all the resources of a liberal government at his command, little wonder can be felt at his preëminent success. Like his predecessors and contemporaries, he worked almost exclusively with direct sunlight, reflected from an immense heliostat; but at various times employed the magnesium, electric arc, and oxy-hydrogen lights, with equal success as to results obtained.

It is not, however, of any of these sources of illumination that I propose to treat in this series of papers. Whatever the future may have in store for us, the one present certainty is that all of them are beyond the resources in time or money of the great majority for whom I would write—the earnest students who desire to preserve and disseminate accurate records of their examinations and discoveries under the microscope, but are unable to make drawings thereof (which at the best are diagrammatic and untruthful), and the enthusiastic amateurs who would like to make pictures of the innumerable interesting and beautiful objects which the magic tube reveals to their eager eyes. A vast number of the latter have taken enthusiastically to photography since the advent of gelatine dry plates, and when it becomes generally known that their twin hobbies can be combined, and photography in a new and most interesting field be carried on of a winter's evening by the aid of a simple coal oil lamp, we may look for a large accession to the growing ranks of photo-microscopists.

The value of photo-micrographs as educators can scarcely be overestimated. The popular demand for illustrated articles on scientific subjects is unlimited, and comparatively few, especially those relating to

microscopy, are now published without illustrations. Hitherto these have generally been made from drawings executed with the camera lucida, at great cost of time and labor; which often exhibiting the most exquisite skill, are all more or less inaccurate and diagrammatic; showing what the observer thought he saw, rather than the actuality as it existed. But with the means at hand for photographing readily, almost in a moment, and at any point in their observations, the subject under examination, we may reasonably hope that the number as well as accuracy of the illustrations to scientific papers will be greatly increased by their writers in the near future. The many processes by which these photographs may be accurately and cheaply reproduced in printer's ink, will greatly aid in their dissemination, and thus myriads of the beautiful and interesting objects in the minute world, invisible to the unaided eye, will become familiar to those hitherto, perhaps, utterly ignorant of their very existence. Indeed, so searching are the chemical rays of light, that not infrequently, details of an object which have escaped the notice of the most careful observer, will be found faithfully pictured by the unerring magic of their touch.

The solar microscope, by means of which greatly magnified images of minute objects can be projected upon a screen, and rendered visible to a considerable audience, has long been a source of wonder and delight, but has never been of much practical utility, from several causes; chief among which is the fact that it can be used only during the day, and one upon which the sun shines brightly. Various sources of artificial illumination have been tried for the same purpose, and with fair success so long as low powers are used, but with objects requiring a considerable degree of magnification, the results are always unsatisfactory. The necessarily small lenses entering into the composition of a microscope objective of even moderately high power, reduce the amount of light passing through them from the most powerful artificial source, to such an extent that the illumination upon the screen is very imperfect and unsatisfactory. But photo-micrography places in our hands a simple and complete method of overcoming this difficulty. A

negative can be made of the object with the power necessary to properly show its structure, and markings or details. From this a transparency may be made on a lantern plate by contact printing, or, if not of the proper size, by enlarging or reducing in the camera. This, in its turn, being placed in the optical lantern, may be projected upon the screen in a manner far excelling the direct projection of the object itself through the microscope. Indeed, so perfect is this method of exhibition that illustrated instruction in various branches of natural history may be given to students in quite large class rooms, by the light of any good oil lantern of very moderate cost, in a manner quite unapproachable a few years ago, save at a large outlay for apparatus and costly but more or less inaccurate paintings, of the objects, executed by hand. The one thing lacking in the photograph is color; but we are all quite used to this, the dim future *may* bring us that long promised boon—photography in colors—and then—but we are not dealing in futures.

Whilst the microscope, as an instrument of research, is constantly gaining ground, so that at the present time no institution of learning throughout the country fails to include the employment thereof in its curriculum, there can be no doubt that the quite respectable army of amateur microscopists of a few years since, have, in very many cases, consigned their instruments to the darkness and security of their cases, and taken to the newer and fascinating pursuit of photography, made easy and practicable by the general introduction of gelatine dry plates and modern portable cameras. But their microscopes remain intact, ready for use at a moment's notice. Their cabinets of mounted objects have preserved their treasures unchanged. Earth and her teeming waters are as full of wonders as ever. It is to this class that the following papers are especially addressed. The fascinations of photography will never pall upon its true devotee; but there come seasons when its pursuit in the fields or woods, or on the waters, is difficult or impossible, and then photo-micrography, if entered upon, will be found equally fascinating and enjoyable with outdoor work. To the former microscopist

it will appear as the return of an old and familiar friend, whilst to a novice it will present the charm of novelty in an untrodden field.

Whilst microscopes and cameras specially constructed for the purpose, are very desirable adjuncts to photo-micrography, they are by no means indispensable. Any one possessing a compound microscope of even the most primitive construction, and a camera of the cheapest kind, has the means at hand for making very acceptable enlargements of microscopic objects by the exercise of a little ingenuity and patience. Excepting with very low powers, special corrections in the objectives are not necessary, and I have done very good work with an ordinary French  $\frac{1}{4}$ , costing at retail only three or four dollars. Whilst the employment of such tools is not recommended to those able to command better, it is nevertheless true as stated, that good and satisfactory work can be done with them, and I emphasize this with the view of encouraging those who have no others, to go to work with what they have. These papers are intended mainly for beginners, and it will be their aim to aid such in the endeavor to utilize any apparatus they may possess, as well as to instruct in the selection and use of instruments specially designed for the purpose. Plain and practical directions will be given in all the necessary details from the focussing and illumination of the object, to the development of the negative, and mounting of the finished prints or lantern slides. To many, these details will doubtless, seem trite or trivial, but they are intended for those who know nothing about the subject, and the older hands, already familiar with it, can skip them at will.

(To be continued.)

## SOME ART PRINCIPLES APPLIED TO PHOTOGRAPHY.\*

BY A. J. TREAT.

GENTLEMEN OF THE ASSOCIATION: I have frequently discussed with different members why it is that the work of some photographers possesses picture qualities, while the

\* Read before the Pacific Coast Photo. Association.

views of others are interesting only because containing objects of local interest, which are without artistic feeling. I have been told that it was natural for some to select well, while others could not do so because they did not possess the proper faculty. In this evening's discourse I will endeavor to prove what I have contended—that by proper study and the application of certain principles in art, any one possessed of good taste may make pictures with the camera.

The illustrations to come are from slides made from negatives entirely. I would have preferred to make them from the copies of paintings by good artists, but using photographs will the more conclusively prove what has been and can be actually done by the camera. This is more satisfactory to photographers than to show them pictures made by artists whose paintings are frequently the creations of their own imaginations, to which nature has only helped by furnishing the suggestion. Reluctantly I have dug from their oblivion a number of failures in order to show why I failed, how failure might have been avoided, and to warn you against similar troubles.

It does not take a great deal of experience to become acquainted with the operations necessary to expose and develop a plate, a person becoming more skilled, of course, as he has more experience. But the faculty of selecting what is worthy of reproduction takes more time to learn, for it involves the education of the eye.

#### ART TERMS.

It may sound rather bombastic to some to hear others, when talking about pictures, speak of texture, play of light, breadth, harmony, unity and all that, but once the terms are understood it will be seen that knowledge of them is necessary for intelligent discussion of the merits or demerits of a picture. For a person should not only be able to tell why a picture is good, but also why it is poor, and if he can do this it will not be so difficult for him to select those scenes in nature that will be both interesting and pleasing when reproduced by photography.

The four great requisites of any picture, whether photograph, etching, or painting, are breadth, unity, variety, and harmony.

Unity is the joining together of different parts or points of interest in a scene so as to make out of many parts one whole. Harmony exists when these several parts are merged into one picture without the conflict of one object with another. Harmony is the opposite of conflict, and unity is the opposite of separateness. In order that no two points should strive for equal prominence, harmony requires that one shall be more important than the others, and that the lesser parts group with it in subordinate positions. Unity requires that all these parts be joined together by lines or gradations of light and shade.

Variety is the enemy of monotony. A picture possesses variety when all its parts are interesting, and each part not too much like its neighbor. To this end the picture must have a foreground, middle-ground, and distance, each diversified so they will be in pleasing contrast with each other. Sometimes the picture will have only a foreground and background, in which case the background takes the place of the middle-ground and distance.

Breadth is the requisite most difficult to describe. A picture has breadth when it pleases as a whole. It is the suggestion of atmosphere or aerial space; the feeling that it is possible to go into the picture and around the objects represented. It is the suggestion of broadness as against flatness and excessive sharpness of outline.

Composition is that union of the different parts by which the subject is agreeably presented as a whole; such an arrangement of the objects represented that when together each one helps the other in illustrating the motive of the picture. Good composition is the result of the correct balance between harmony, unity, and variety. It is the construction of a picture, and is to the fine arts what rhetoric is to literature: the most pleasing result to be obtained from given material.

Chiaro oscuro is the term generally applied to pictures of strong light and dark. Chiaro signifies clear, and oscuro dark.

#### COMPOSITION ACCORDING TO GEOMETRICAL RULES.

By a close analysis of the works of early painters, some students of art have con-

cluded that the arrangement of figures and masses as seen in their paintings was always in accordance with certain rules. I find no mention in the works of Hamerton or Ruskin concerning composition according to geometrical figures, but Burnet and other writers on art claim there are three arrangements, the pyramidal, the oblique, and the circular, under one of which all pictures will come. Jarvis has written upon this, but Burnet was, I believe, the first to advance it. It seems to me that these forms, especially the first two, were as much the result of the proper observance of the requirements of balance and variety as of design on the part of the artist. Here is a picture in the pyramidal form; that is, a line drawn through the points of interest would make a figure pyramidal in shape. The top of the group could not be as long as the base, else the form would be heavy; so, with these conditions, it can assume no other form than that of the pyramid. Supposing distant hills, or any series of objects, such as trees, make a line across the scene. If the line is straight, the result is monotonous. But as soon as one is lower than the other, the picture assumes the form of the angular or oblique. Suppose a view with a principal object on the extreme right (or left); balance it with a lesser object, and you again have the oblique, though aiming more for balance than to make an oblique form. It is not necessary that the lines of these forms of composition be those of all the objects in a picture; they are the lines of greatest interest over which the eye naturally travels.

The circular composition is so seldom met in photography, though used very much by the old masters, that I will only mention that it is like the other form in this—that a line taking in its principal features will be of a circular shape.

#### Focus.

There is focus of light and focus of detail. In the focus of light the light leads to the central object, drawing attention to it. It is a term more applicable to paintings than to photographs. In focus of detail some part of the picture is more defined than another, which effect tends to give

breadth. If the details of all parts of the picture were equally defined, the foreground and the distance, the result would tend to harshness. The focus of a picture should be governed by the subject. If you have a figure on a path, for instance, and have the leaves of the foreground as well defined as the pattern of the shawl, you will find you rob the figure, which is the object of interest, by diverting the attention away from it to the unimportant leaves. When right, your eye is attracted to the figure by the very fact that the foreground is *not* sharply in focus and is made accessory only. Where figures in the foreground are large, it may be set down, as a rule, that the focus of subordinate objects should not be sharp, else hardness or lack of breadth will be the result. It should not be understood by this that any part of the picture should be indistinct or blurred. It may be subordinated by not being sharply defined, but should always be suggestive of what it is intended to represent. For artistic purposes it is often desirable to make one object more prominent than another, and as this cannot be done as a painter would do it, by brilliancy of color, the photographer must resort to the only thing available to him, the lack of well-defined detail in subordinate parts. You cannot show the delicate detail of a flower and, at the same time, the grandeur of a mountain without one or the other being the loser.

Lack of focus, however, should be carefully studied and never be done at too great an expense of truth. It may be set down, as a rule, that where all objects are of nearly equal interest, the definition may be from edge to edge of the picture, and without necessarily producing hardness. Take this beautiful bit of Mr. Partridge. It is a picture in which the middle tones predominate, and is made soft by the very fact of its good focus, which brings out the delicacy of the foliage. This foliage is a study in itself, and yet the figure is so placed and lighted that it is in no way slighted because of details in other parts.

It may not be uninteresting to here digress and mention the conflict between the pre-Raphaelites and the schools existing at the time of their productions. Certain

painters had created a new school and were endeavoring to paint Nature as they saw her—with all her delicate details. Their work was almost unnoticed, or when noticed severely criticised, when the first two books of John Ruskin, called *Modern Painters*, were published. In these Mr. Ruskin vigorously defended the new school and made eloquent and logical appeals for the proper recognition of their work. He claimed that the first principle of art was truth, and to this end it was necessary to show not only the texture of stone, but the particular kind of stone. At that time, and since, several artists faithfully followed the teachings of Ruskin, but the tendency in their works was to hardness, because of excessive detail. Holman Hunt was one of the first of the pre-Raphaelites, but the most noted of them was Turner. The work of these painters and the writings of Ruskin greatly benefited art and established landscape painting on a much higher footing than it had before occupied.

I called attention to the tone of Mr. Partridge's picture, which means the range from the white of high lights to the black of deep shadow. It is in place to here mention the fault in the work of so many photographers—spottiness.

With few exceptions, such as chalk and marble, there is nothing white in Nature. Thank heaven whitewashed fences are not of Nature. Even fleecy clouds are seldom white, but more of a pearly color. To have a perfectly blank, white sky, is untruthful to Nature; as much so as to have a bit of sunshine, which in Nature is a golden-yellow, come out in a photograph a patch of glaring white. A picture cannot be harmonious with spotty white places scattered through it. They are not only untruthful, but distract the eye and rob some other part of its beauty. It was said by Rubens that "White was a pearl in light and a poison in shadow." If there are patchy spots of high light then the white loses its value and becomes common. When needed it has lost its effect, and there will be the same result if there be too much shadow.

It is impossible for painters to match the colors of Nature. An artist cannot, with the whitest color man can produce,

match the brilliant white of the sun or the deep black of a shadow. But he will hoard up his white and his black, and by using them sparingly will obtain the desired effect. So also with photography. Unless we establish the correct balance between the highest light and the deepest shadow, the balance between them is lost, and the picture becomes harsh. To attain this balance requires the most skilful treatment in development.

#### SELECTING LANDSCAPES.

Views selected without intelligence are not beautiful merely because they are from Nature, because she has moods like men and women, and appears more attractive at some times than at others. A sign painter uses about the same material as the artist who paints a grand picture. So may the shot-gun photographer use his camera, firing point blank at every brook, and tree, and rock without discrimination, producing what he is pleased to call pictures, but which lead the true lover of Nature to exclaim of photography as Madame Roland did of liberty, "What crimes are committed in thy name."

The art of seeing pictures in Nature is cultivated and not altogether born. One may have innate taste and appreciate the loveliness of a scene, but he is given greater pleasure when able to tell why it is beautiful, or if there be faults, to tell why the scene displeases, and how it could be improved. Some like music because it pleases them, but the educated musician will see beauties unrealized by those who have not studied harmony.

The first requisite of the view should be motive, that is the cause or inducement that leads the artist to make his selection. This motive may be a brook, or a tree in particular, or a landscape in general.

Select a view which has either a foreground sufficiently broken up by contrasting forms, or a middle ground and distance with interesting masses. If the foreground is particularly interesting, then the middle ground and distance should be subservient to it. But if the distance is more important then the foreground should help it by connecting lines. One should

always be more prominent than the other, in order that it will at once attract the attention. Whichever part is more prominent and pleasing will be the motive of the picture. That the motive be preserved, no two equally attractive points should be within the same space, for one would detract from the other, but if two objects are similar, and one larger and more prominent than the other, the smaller object becomes the echo of the larger, and adds to the effect by repetition of the main theme.

To give variety, curved lines should be strengthened by straight ones. The curved lines of a beach, for instance, contrasted with the straight lines of trees. Unless the undulating lines of hills were broken by masses of rocks or groups of trees, the effect would be very flat indeed.

Straight lines give dignity and strength, curved ones grace, and the happy medium between the two makes variety and harmony.

A horizontal line should never bisect a picture into two equal parts, else it will lack repose. The eye will come from one side of the view to the other, and finding either part equally interesting, cannot rest on one without the other conflicting.

Landscape painters have found it best to place the horizontal line below the centre. Level ground should be about one-quarter or one-fifth the height of the space, undulating ground one-third, and mountains and lakes less than one-half. When the horizontal line is above the centre, there generally follows a picture of heavy masses, but if near the bottom there is a suggestion of atmosphere and space.

#### BALANCE.

The principle of all good pictorial arrangement is balance. All lines should be compensated by other lines or objects. A picture in which the principal lines run in one direction, without being supported by opposing lines, would be both weak and uninteresting. "Balance," says Jarvis, "amounts to this, that if all the interest lies at one end of the picture the other end is superfluous, and should be cut off. It will constantly be found that a small figure may balance a great inert mass, and that a

point of light may balance an expanse of darkness and a cloud of mountain."

#### CLOUDS.

Of the few things that photography can do well, one of them is the perfect copying of clouds. Artists have great difficulty in painting from them because they are constantly changing their forms, and require the most rapid draughting to secure even memoranda of them. Constable, the English landscape artist, spent whole days in studying formations and their effect upon the landscape. A painting without clouds is the exception. They are used not only to give variety to the sky, but to balance and give emphasis to the composition. Mr. Lowdon, in his "Breezy Day," uses them with fine effect, accenting the diagonal composition, helping to balance the picture and giving increased action by having the same "go" in them as the yacht and the wind which moves it.

In a recent trip to the country I was more impressed with their magic effect upon the landscape than ever before. I found that the simplest view, under the influence of a fine cloud effect, became beautiful. As these effects can be obtained by the camera, it will not only pay the photographer to watch for them, but to spend time in getting them when found. If the foliage is not too near and dark, they can be taken on the same plate as the landscape.

Here is a photograph of a scene near Point Reyes. The landscape in itself is simple, but when combined with the cloud-effect existing at the time, the result is a picture. You will notice that the landscape is only one-third of the space, and that the small bunch of willows on the right balances and echoes the tree upon the left.

It is true that clouds are not always on hand when wanted, but they can be taken when possible and used afterward, care being observed that when used with another picture they are lighted from the same direction as the landscape, and that as regards composition they fit into it. Printing-in clouds is more abused than taken advantage of, an abuse mostly done by the professionals. I have seen one take a snap shot at a cloud-effect after there had been a rain storm, and

the formations were striking, pointing his camera right in the direction of the sun, and then use this negative in four different pictures lighted from four different directions. The method of Mr. Lowden, who has been very successful in printing them from a second negative, is to take instantaneous views of cloud formations at different periods and under varied conditions. These negatives are marked according to the effect at the time they were taken, as rainy, stormy, summer, strong and stormy, etc., and one negative used for a particular picture, and in that picture only.

#### DIRECTION OF LIGHT.

It is the belief of many that when taking a picture the light must shine on the scene, or at least at right angles to it. Now some of the most striking and weird effects are made when the light is shining directly toward the lens, and the object is between the source of light and the camera.

This picture by Mr. Reed, our galloping beginner, is, as you see, taken against the light. The subject would appear well under cross lighting, because it is simple and of good arrangement, but under this particular lighting, or effect of *chiaro oscuro*, the effect is strongest and best. In taking this view from the hills back of Hayfield, the lens had to be protected from the light by the slide; in fact the sun was so low down that the rays shone partly into the lens. It would be tame under any other lighting—certainly it would not be so weird as it now is.

The subject of lighting a picture is most important and should be carefully studied, for upon the lighting depends the expression of the landscape. In the morning before ten o'clock the light is soft, the shadows are not too black or the high lights too bright. At noon the light coming down almost vertically (more so in summer than in winter) the shadows of objects are very small, and there is a general lack of breadth to all landscape. My own experience is, that late in the afternoon is the best time for pictures. The light then is soft and the shadows are not too dark, while the effect of the light striking objects at a shallow

angle is to lengthen out the shadows, giving great variety and breadth of effect.\*

### EXPERIENCE A DEAR SCHOOL.

BY THOMAS PRAY, JR.

THERE may be a flavor of age to the heading, but it's a first rate idea to quote such old maxims semi-occasionally—and it may be well to repeat that the writer is one of the many fools who attended the "school"—but there seems to be an increasing number of people who are willing to learn by the experience of others instead of blundering along alone, each individual thinking himself or herself just enough smarter than the other one to avoid the rock and make a success of it, but usually completing the sentence.

There seems to be, judging from my personal correspondence of late, a lot of new readers of the PHILADELPHIA PHOTOGRAPHER who seem to be asking questions, many of which are of general interest; and as the inquirers give me the privilege of answering through the columns of the PHILADELPHIA PHOTOGRAPHER if the editor of that prince of photographic publications becomes a party to it, we will begin and answer such inquiries so as to help the amateurs, for the professionals don't need any help as a rule.

#### THE METRIC SYSTEM.

What are its advantages?

I have failed to find any advantages, either professionally, practically, or based on common sense. The most practical answer that I ever received to this often asked question, was received from the executive head of a Philadelphia firm of machine tool makers of *world wide* reputation, and who find work for several hundred men. The question was identical with mine. The answer came, "We introduced it into one department of our works some years ago; we have never extended it to any

\* In our next issue, the second part of this admirable lecture will appear, wherein the author will apply art principles to the varied kinds of work presented to the camera and add some of his illustrations.

other, and it has been a disadvantage to us, and to our men from that day to this." Further inquiry elicited the fact that French and German draughtsmen employed by this firm, who were familiar with the metric system, came over here, tackled inches and our decimal system, and in a few months would largely increase their productions, and save time and money for the concern. The reduction of ounces, drachms, grains, etc., from our old-fashioned, common sense way is only a mathematical feat; the factors are simple. A *metre* or unit of length, at 32° is equal to 39.370432 inches. The *litre* is the unit of capacity and equals 33.816 fluidounces of U. S. standard, or 1.816 ounces more than one quart. The *gramme*, or unit of weight, equals 15.432-34874 Troy grains, so that those readers of the PHILADELPHIA PHOTOGRAPHER who wish to convert our ounces to metric, can, by using these numbers and plenty of paper and figures, do so; or, to go a little further, one ounce avoirdupois = 28.3495 grammes; a pound avoirdupois = 453.5925 grammes, and one grain = 0.0648 gramme. Taking the Imperial gallon, and we have 4.543487 litres or a little over four and one-half quarts. In a pint, Imperial, we have, 0.567936 litre. If we want to get at feet and inches, 12 inches = 30.48 centimetres; 1 inch = 2.54 centimetres, while a  $\frac{1}{2}$  inch = 12.70 millimetres, etc. It will be seen that the reduction factors are liberal in the use of decimals. In our mixing of pyro if we want  $\frac{1}{4}$  of an ounce it will be, in French, 7.088 grammes; 3 ounce of sulphite of soda comes in flying with 85.050 grammes, while, if we tackle 4 ounces of carbonate of soda, 113.400 grammes, and when we come to hypo 13 ounces, we get 368.54 grammes, put into 48 ounces of water, which is 1419 cubic centimetres. While if we reverse the process and transfer a metric formula into old-fashioned horse sense, we get some hair-splitter fractions, as follows:

500	c. cm.	= 16.9	oz. Apothecaries.
100	"	= 3.38	" "
10	"	= 2.71	fluid drachms.
4	"	= 64.8	fluid minims.
0.05	"	= 0.81	" "

35	grms.	= 1 oz. 103 grs. Avoirdupois.
100	"	= 3 " 230 " "
500	"	= 17 " 279 " "

This should be enough, with the simple statement that the metric system was legalized in Great Britain twenty-four years ago, and in the United States one or two years later. And it has come *little indeed into general use.*

#### IS PYROGALLIC ACID A POISON?

Yes, most unequivocally. Its chemical action on the system being much like phosphorus, it is not a material to be handled carelessly and should never be left within reach of children. Care should also be taken that it does not enter the system, either dry or in solution, through fresh cuts on the hands or fingers.

#### WANTED, A LENS, QUICK AND WITH HIGH DEFINITION.

The properties any given lens possesses may be briefly stated as, if definition is possessed in a superior degree, speed is lacking. For instance, take the Ross portable symmetrical lens, one of the most superb lenses for landscape or architectural subjects ever made or now on the market: it is comparatively slow. Its definition and features of field are superior. The amount of glass in it is small, but it has microscopic definition, and the spherical aberration is the lowest possible. Then take the Suter "A" series, second to none in the speed it will work at. The glass is six times nearly in area, compared with the Ross, but the definition is good *only* in the central part of the negative, gradually growing less and less distinct. Take the Suter "B" Series and it will handle anything that moves, with Stanley, Seed, Cramer's 35 or 40, or some other snap plates by using a lens one size larger than the maker's rating. When it is stopped down it will do almost as fine work as to distinctness of definition as the Ross, hence the "B" Suter is better for an all around lens than the "A" series. Use a 10 x 12 for snap on 8 x 10 plate or a 6 $\frac{1}{2}$  x 8 $\frac{1}{2}$  on a 5 x 8, and use a slower plate for time exposures. These points can all be found in Wilson's *Quarter Century of Photography*, with hundreds of other points of

equal value, but the average amateur don't study, don't work hard on details, and for that very reason, "*Don't* succeed."

Take the Dallmeyer new series rapid rectilinear lens. It will do snap shutter work elegantly; and stopped down with slow plates will give microscopic definition, flatness of field and penetration, which secure clear cut robustness to the negative, which in turn produces softly modulated tones in the shading of the silver print. And there are other good lenses on the market, but the laws of optics, when faithfully applied by the makers, will not cover the whole range of photographic work. Amateurs frequently want to do portrait work in the house, snap shutter in the field, and copying of old pictures as well as landscape work, all with one lens and one plate, and they might as well try to eat gravel stones for oat-meal. Amateurs' portrait work is usually unsuccessful for the fact that instead of getting a face as large as a nickel, they must have one a silver dollar size, and get so close to the sitter as to treble or quadruple the time, and so ignorantly violate two laws of optics, and fail. If they attempted possibilities within the range of the lens, a reasonable success would follow. But most people want to jump into the top seat; and stockdealers are in a measure to blame (some of them) by leading amateurs to suppose a common lens will do a cabinet head, a landscape, snap shot, and by a *smallest* stop will come in as a wide angle lens. If the lens will answer a possible two out of the four it will be a very good lens; but for in-door portraiture use a lens for that especial purpose. You can buy them cheaply second-hand, and you will be surprised to find the glass in a cabinet size lens 3 to 3½ inches in diameter, and made to work at from 10 to 30 feet from the face. A head as large as a silver half dollar, in good light, can be done in 4 to 7 seconds so as to show each eye-lash, wrinkle, mole, or freckle, while an ordinary out-door lens wouldn't do it at all, or even an approximation in 30 to 40 seconds, same plate and light.

There is one more point to be mentioned in connection with fast and slow plates; a plate exposed for a very brief interval can-

not by even the most careful and skilled manipulation be made to take the softly graded plate, as the longer exposed must be the slower developed plate. Any one who handles the microscope knows this, that a Cramer No. 15 or a Forbes Red Label, exposed 4 to 6 seconds and developed properly, has a film very many times finer than any of the snap plates, Stanley, Seed, or any of the 25s or 30s. The reason is simple and solid; the chemical decomposition of the silver salt, from the action of light, in the slow plate, is complete and thorough, the result fine, soft, perfect, while the snap shutter plate, even with its sensitiveness and forcible development produces structural changes in the film that are coarse, granular, and harsh to an extent that can be compared only by sawdust, and fine wheat flour. But in the time plate the modulations are so much softer, shaded from one to the other with such an infinite blending that it produces harmony; and to the eye that can measure and appreciate there is that difference that means rest or annoyance in the picture. These points are beginning to be understood by the more intelligent mass of amateurs; and while the snap shutter folly has its place yet for practical purposes, it will be relegated to its proper place, at the rear. Men who have earned fame as photographers of inanimate objects do not and will not attempt to pop away at a shadow. They have learned of the lesson of art, or life, that great achievements, if born of inspiration, are executed only with patience and pains. The man who plods, doing well what he touches, is by a vast majority the successful one who in the end reaps credit and dollars in proportion as he masters his subject, remains its master and is his own.

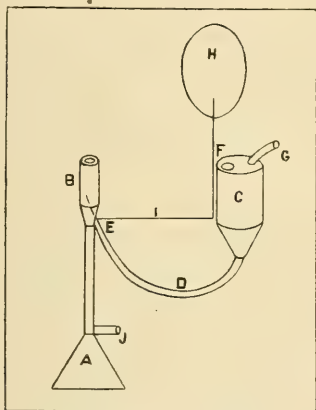
## A NEW MAGNESIUM LAMP.

BY L. A. JAMES.

I BEG to enclose you a few cabinet and *carte* specimens taken in the ordinary course of my business by the magnesium light. If you think the results good enough to warrant the publication of a description of the lamp with which they were produced,

then the following particulars will, I hope, make matters clear:

The lamp is one of my own contriving, and consists of an ordinary movable gas standard (A) such as is used with India-rubber piping to allow of the light being moved about the desk or table; it is fitted with an Argand burner (B). C is a small tin can with a conical bottom and a flat top; at the point of the cone a piece of brass tube (D) with an eight inch bore is let in and led with an easy curve to half-way up the hollow centre of the Argand burner, being fixed with solder or wire along the upright gas standard at E. On the flat top of the tin can is let in a brass screw stopper (F) through which to pour the magnesium powder. G is a piece of quarter-inch brass tube about three inches long, also let into



the flat top of the tin can. H is a nine inch circular concave silvered glass reflector fastened by a wire to the tin can. I is a piece of wire soldered from tin to upright of gas standard to support and strengthen the reflector and tin can. J is the nearest gas inlet, to which a length of rubber tube is fixed and led to the nearest gas bracket. Attached to the brass tube G a six-foot piece of rubber tube.

To work the lamp unscrew the brass stopper F and pour in either an ounce or two of powdered magnesium, or simply charge the can with a small quantity of magnesium, enough for one exposure only, screw on the stopper, light the Argand

burner to give a flame of seven or eight inches long (without a glass chimney), give the tin can a tap with the fingers to cause the powder to settle well into the bottom of the cone, and now the lamp is ready to flash off, to do which, simply blow through the six-foot rubber tube attached to G, which will with one moderate puff give a powerful flash of so short duration that infants have not time to move ere the exposure (and a full one, too) is over.

I find that measuring just enough powder for one exposure and charging the can with that quantity, works better than filling up the tin with magnesium, as by the latter plan results are not so regular and the pipe is liable to clog up.

The important improvement in this lamp over all others that I have heard of, is that the magnesium powder is forced right through the centre of a solid mass of flame several inches in length; this insures immediate and complete combustion of the powder, which is far from being the case when one or two flat flames are used; also I find an improvement in the plan of blowing with the mouth instead of squeezing a ball, as in the latter case there is danger of the flame, or some burning particles of magnesium, being sucked back into the tin of powder when the ball expands. Gaslight will be found cleaner, better (giving larger flame), and safer than oil or spirit lamps. It is important to diffuse the light, and a frame of ground-glass hung between the lamp and the sitter gives a nice soft light.

For a few exposures the use of a lantern and chimney may be dispensed with, but for constant and consecutive use some arrangement to carry off smoke must be made. I enclose the lamp in a case with a ground-glass front and fitted with a chimney.

To focus, a strong gas or lamp light is used and kept burning during the exposure. I place this light on the shadow side, and find that by exposing the plate a few seconds just before flashing off the magnesium, I get the shadows softened a good deal, and am able to then use a small reflector only.

The specimens which accompanied this communication are quite as good as if taken by daylight.—*British Journal of Photography.*

### FACTS AND FANCIES.

**COUNTERFEIT POSTAGE STAMPS OBTAINED BY THE AID OF PHOTOGRAPHY.**—Four persons have just been tried, accused of having made counterfeit postage stamps. M. Mendel gives the process employed by these industrious scamps, which is as follows: After having exposed a stamp on the glass plate of the pressure frame, the counterfeiter placed over it a gelatino-bromide silver plate, and by the reflection of a candle he obtained the image of a stamp reproduced and visible after coming from the developing bath; he then fixed the photographic cliché which was to be used for the reproduction with fatty ink. Against this cliché he applied a transfer paper saturated with bichromate of potash, ammonia, and gum Arabic, and then exposed the whole. He then removed the transfer paper from the pressure frame, passed over the visible portion of the stamp a roller charged with transfer ink, and developed with dilute nitric acid. Nothing now remained to be done but to gum the sheets and to endeavor to dispose of them. In this manner were printed one hundred sheets of one hundred stamps each.—*Journal de l'Industrie Photographique*.

Our old friend Dr. Vogel, editor of the *Berlin Photo.-Mittheilungen*, after sailing under one cover for nearly a quarter of a century, now comes out proudly with a new one, on which he enthusiastically expatiates thus:

**OUR NEW COVER.**—Many times the editor has been requested to give our journal a new and more artistic cover. This wish is the more to be desired since by the founding of the Society of the Friends of Photography, the journal has found its way more into the circle of artists, scholars, scientists, soldiers, etc. The fulfilling of the wish, however, was brought to pass by Prof. Jacobsthal, who most kindly exerted himself with his customary success. From his design, with the coöperation of F. Poppe, a member of the Society, the beautiful page with which we open the new year was presented to our readers. Professor Jacobsthal has the quality of avoiding the stiff unicturesque photographic requisites, with which it is customary to see title pages

adorned, for genuine artistic sentiment. The goddess of light at the top and the symbol of photography (the sun-flower) indicate the art of light sufficiently. The figures to the right and left, representing formative plastic art and science (the former denoted by the picture-giving mirror, the latter by the spectrum as the basis of color-photography) demonstrate conclusively the main stays of photography. The rich garland which is drawn around the foot of the ornaments, denotes the fruitfulness of photography with special regard to its use in art (artist's maps and theatre-masks); on the right, industry, science, and military concerns (sword, wheel, telescope); on the left, the German eagle characterizes the societies, which we represent, as German. The new artistic cover necessitates us to place the table of contents on the inner side like English journals. We hope to prove the contents worthy of the cover."

We congratulate our veteran co-worker, and he is not too old for us to wish sincerely that he may work for our art another quarter century under his new cover.—Ed. P. P.

**HOT PLATES.**—In these short days of feeble light and extreme cold there may be times when with the quickest plate a sufficient exposure cannot be obtained. Mr. Rockwood tried an interesting experiment lately, which is simply a confirmation of a good many years' experience, and that was to warm the plates very thoroughly before exposure. The sensitiveness is thus increased, apparently, full 50 per cent. or more; in fact, in a room where a plate had been exposed for an hour and a half and the exposure found to be insufficient, the plate-holder was taken from a hot-air register where it had been standing until both plate and holder were absolutely hot, and a thoroughly successful negative was made in twenty minutes. The little dodge is well worth remembering.

### A NEW TRANSPARENT AND FLEXIBLE SUPPORT.

M. FROEDMAN has just discovered a new process for rendering gelatine, glue, and

other bodies of the same class insoluble, by treating them with the salts of chromium, as bichromate of potash. This process also consists in transforming these bodies into colorless, transparent, and flexible membranes, by the use of sulphurous acid, and of its compounds; in this manner can be obtained a flexible support which can take the place of glass in the various photographic processes. For the photographic operations proceed as follows: Take gelatine, of good quality, soak it in water and dissolve, then add bichromate of potash; and, finally, some alcohol, in order that the gelatine may flow more easily over polished plates. If need be, add a little glycerine to give the required degree of flexibility and softness. Before spreading this bichromatized gelatine over the plate, the plate should be coated with Mendon chalk, then on this surface is floated collodion (enameled), containing the necessary quantity of castor oil; as soon as the collodion sets, plunge the plate into water until the surface no longer presents an adipose appearance; then from the warm solution of the chrome salt and gelatine, and dry in a warm room. Instead of placing the collodion on the polished plate, a border may be made with caoutchouc dissolved in benzole, to keep the membrane in place during treatment. This being done, expose the plates to sunlight or in the shade, to convert the matter into an insoluble compound; place another border around the plate, wash to remove the unchanged chrome salt, plunge into a solution of sulphurous acid, and then wash. This membrane is adapted to receiving a photographic emulsion. Here are the proportions recommended by the inventor:

Gelatine . . . .	3 parts.
Water . . . . .	24 "
Bichromate of Potash . . . .	4 "
Glycerine . . . . .	$\frac{1}{4}$ part.
Alcohol . . . . .	4 parts.

This new and transparent flexible substance may be used for all manufactures in which similar matters enter; it can also serve as a basis for photographic prints, to be used in making transparent signs.—*Journal de l'Industrie Photographique.*

[Translated for the Philadelphia Photographer.]

### MAX PETSCH.

It is only a few months ago, since we reported the death of our honored member J. B. Obernetter, in the bloom of his life, and now we have to record the loss of another honored one, who departed this life in the same year of his age as the former, Max Petsch, the co-founder of the celebrated firm of Loescher & Petsch, in Berlin.

Mr. Petsch was born in Berlin, March 1, 1840. Here he received his education. He was early left without father and mother, and at seventeen years of age stood alone in the world, an orphan. About that time (1860) he was an apprentice in the well-known drug shop of Braumüller, and entirely dependent upon himself. His guardian, F. Beyrich, took him from this place into his own rising business in photographic chemicals, as chemist for the examination of photographic apparatus and preparations. With Grundner, Sr., he learned practical photography. His teacher had no high opinion of his capabilities, but he was deceived, as many other teachers have been. At that time Mr. Petsch planned, in connection with the present writer, the forming of a photographic society. His friend Loescher was taken into his confidence. But at the same time, both concluded the founding of a new studio in partnership. This took place at the close of 1862.

In spite of the cares of his new business, Herr Petsch still kept in view the founding of the society, though the invitation to a first preparatory session was declined by many prominent photographers, among whom were Schauer and Thigaud. Besides the founders, only one person, Mr. Bettu, was present. But soon such men as Beyrich, Schering, Dr. Jagor, Osborne, etc., took interest in the plan, and the society took form with sixty members. Petsch, feeling satisfied that he had done his duty for the society, devoted himself with his brother-in-law, Loescher, to his new business entirely. In his indefatigable activity, he soon discovered that only by marked effort could the artistic side of photography be lifted up. The subjects, position, and lighting were discussed in an earnest man-

ner; his art-loving partner zealously accorded with this effort. Petsch felt the lack of his own art-culture, and worked unceasingly to improve himself, as few young photographers are wont to do. He read all accessible works on art; still more, he invited celebrated artists to his house (among these were Schaper, the creator of the Goethe monument, and Encke, the creator of the Louisen monuments), and arranged with them a drawing night, in which not only drawing but all modern art interests were discussed. The importance attached to drawing (recently mentioned in these pages) by Herr Kopsky, for art culture, especially for the artistic sense and the improvement of lines and forms, was recognized by Petsch twenty-five years ago. I remember with pleasure that delightful evening when Loescher and Petsch took up the drawing-pencil and worked diligently as scholars, though at the time principals. About that time Petsch and I began a series of articles on position and lighting, explaining to photographers the principles of their art. There appeared the essays "On Position and Lighting," with four portraits of the same model in front, upper, side, and mixed light, which were printed in English, American,\* and French journals. Only in Berlin did they meet with any opposition. But Petsch was not the man to allow himself to be confounded. He possessed a stiff-neckedness which sometimes overreached the mark, but, on the other hand, led to the greatest success. He was not only a thorough photographer, but also a thorough business man. The superiority of the aesthetic pictures of the firm was acknowledged by the majority of Berlin photographers almost without exception, in the International Photographic Exhibition of 1865, when the Society awarded the medal to Loescher and Petsch because of the greatest number of home votes.

Three years after its founding, the business was in splendid condition. Petsch gradually withdrew himself from the Society.

The dead agent, Julius Ernst, had thrown

\* See PHILADELPHIA PHOTOGRAPHER, Dr. Vogel's letters, etc.

the apple of discord into the association. Miserable quarrels and intrigues against the president disgusted many members with the society to such a degree, that the majority resigned, and the Society for the Advancement of Photography was formed, which under the old president quickly rose into notice. Now again did Petsch engage whole-souledly in society work. A year after this the "Watch on the Rhine" called him to arms. Before Metz, in Kummer's division he fought for the fatherland. He took part in many severe attacks, but remained throughout unhurt. He gladly returned home as victor, and devoted himself anew to his business and to the society. He labored not narrowly for himself alone, but generously communicated whatever he knew from his nine years' experience to others. At the same time he proved his talent most excellently by his genre-stereo pictures, since so much admired and imitated.

The art culture of photographers laid so close to his heart, that he earnestly urged the introduction of drawing nights into the society. The publications in our journal have given some idea of his restless activity. For instance: "About Position and Lighting," by M. Petsch and H. Vogel; "Loescher and Petsch's New Atelier;" "Concerning the Influence of Individuality in Portraiture;" "Children's Pictures;" "Gradated Backgrounds."

But even this literary ability did not suffice; he sought to work in another direction also. So he joined a commission to find out by experimenting the profit of a real lasting negative varnish. Moreover, he prompted an exhibition of frames in the society so as better to show forth the beauties of the photograph. Thus he labored assiduously, and had the joy of seeing his efforts crowned with success. Many photographers are indebted to him for their knowledge of their art.

The artistic principles advanced by him still hold their value. The society honored him as an honorary member.

But in his unceasing strivings toward art, Petsch recognized that a limit is set for the artistic photograph by the inflexibility of the material. He wished to produce a

more perfect thing than photography permitted; and so, like many other similar thinking photographers, devoted himself to painting. He was a pupil of the celebrated Gussow, in Weimar, and followed him to Carlsruhe. His aim was portrait painting. He doubtlessly possessed a fine eye for portraits. But there is often much which the eye perceives lost by the hand. Soon he perceived that his power lay in quite another direction, a department which no one had previously entered. He achieved his success in flower painting, and this was so lasting, that he kept no picture on the easel so that he should be tempted to repeat it in different positions. So he formed in Carlsruhe a happy home in congenial intercourse with artists and their pleasures, at whose feasts he made his executive talent valuable. He was childless, a misfortune for such a lover of children as he. He would have reached a good old age, had not a liver trouble taken possession of him years before. His beloved wife was taken sick at about the same time. She died in September, just as he had completed his new villa at Gernsbach, in Carlsruhe. He did not know how soon he would follow her whom he so deeply grieved.

He made a visit to Berlin to see his brother-in-law, and while there was taken ill with his old malady, but wrote that he was feeling better. Two days afterward he died. He was forty-seven years old. Peace be to him.—DR. H. VOGEL in the *Photo. Mittheilungen*.

## TREATMENT OF THE NEGATIVE BEFORE PRINTING.\*

RY W. K. BURTON.

According to the promise made when reviewing Mr. Burton's excellent "Guide" in our last issue, we give some idea of just how "practical" it is by the following extracts.

"The extremes of lights and shadows in a perfect silver print should be represented before toning and fixing by an approach to

white (a slight tint), and by bronzing (a sort of metallic lustre that appears on albumenized-sensitized paper when it is printed very deeply), and after toning and fixing by pure white in the *very highest lights*—and darkness as great as the paper is giving in the deepest shadows.

A negative which will give on albumenized paper, prepared on a neutral bath of fair strength (say 50 grains), such prints, when printing is allowed to go on in the brightest diffused light, may be termed a standard negative, and any departure from it will be termed too thin or too dense.

Although the standard above described is fixed entirely with relation to albumenized paper, and although it is true that every process will give from such a negative prints differing somewhat in range of depth as well as in color, yet I think I am correct when I say that, granted a negative with the extremes of transparency and density such as I have described, and having the gradation between such extremes good, it will be possible to get a good print from it by any process capable of giving a good print at all. I shall now suppose that the negative varies from the standard either one way or the other, and shall state how the best can be made of it, first treating of the methods whereby matters may be improved without treating the negative in any way, and afterwards describing various ways of treating the negative.

*The Negative is too thin.*—For such a negative paper floated on a strong bath and for the full time only should be used, and printing should go on only slowly, the frames being placed where there is a subdued light. Paper prepared on a neutral bath should always be fumed when thin negatives have to be printed from on it.

Some brands of "preserved" paper give stronger contrasts than does paper prepared in the ordinary way. Such paper may be used for thin negatives.

It should be observed that a little exposure of the sensitized paper to light at any time previous to fixing does much more harm in the case of that to be used (or which has been used) for printing from thin negatives.

Now as to the negative itself. I leave out all mention of intensification, because a

\* From Burton's Practical Guide to Photographic and Photo-Mechanical Printing Processes. \$1.00.

description of such is out of place in a book on printing; but I cannot resist describing a process of great beauty whereby the effect of a moderate amount of intensification can be produced, and which may indeed be called a process for intensifying, but is applied to the side opposite to the film. The method is an application of the powder or "dusting on" process. I shall here just point out the principle on which it depends. Films of certain substances, which are hygroscopic (tend to absorb moisture), cease to be so after exposure to light. If such a film be partly exposed to light and partly not, so that one part is not hygroscopic whilst another is, and if any pigment in the form of a light powder be brushed over the film after it has been in a moist atmosphere for a few minutes, the powder will adhere only to those parts which have not been affected by light, and which, therefore, are not hygroscopic. If such a film be exposed under a negative and be afterwards developed with powder, a negative is the result. If under a positive, a positive.

Now if the side of a negative on glass, opposite to the film, be cleaned, be coated with the substance used in the powder process, be then placed film-side upward in light, and be afterwards developed with powder, the result is a second negative on the front of the glass, which serves to augment the first. Moreover, the second negative is not quite sharp, and the result of this is to give a charming softness to the resulting prints. Further than this, there is great control over the results produced, inasmuch as it is possible to modify the *gradation* of additional density conferred as well as the amount. Thus only a little additional brilliancy in the high lights is required, a long exposure is given when the powder "takes" only on the high lights. On the other hand, if it be desired to bring up the half tones as well as the high lights, the exposure is made short so that the powder takes, more or less, everywhere but in the deepest shadows.

It is possible by skilfully managing the process to intensify locally with the very best results.

In the case of small negatives or even large ones where the glass is very thick,

printing (through the glass) to act on the "powder" film should be done in direct sunlight, the negative being held with the plane of its surface at right angles to the rays of light. If the negative be large (say over the whole plate) and the glass be not very thick, printing may be performed in diffused light. The consequent loss of definition of the "powder" image will not hurt the final result.

Of course, negatives which have been treated in the way just described, must not be printed in direct sunlight.

When the method of local modification by working on tissue paper pasted to the back of the negative is treated, it will be seen that it is also applicable to the bringing up of high lights generally, although the process is of necessity somewhat tedious.

*The Negative is too dense, giving Prints which are hard.*—If the negative be underexposed as well as hard—if there be, that is to say, want of detail in the shadows—it is impossible to get a perfect print from it either by treatment of the negative or by any other method; but if the hardness be due merely to too great contrast, all the half tones being then in their correct proportion, the only defect being in fact that they range through too great a field, then it is possible by due treatment of the negative, at any rate, to get perfect prints. But first, for what can be done by treatment of the paper. In the first place, if the print be only a very little too hard when printing is performed in diffused light, probably all the improvement necessary will be brought about by printing in the brightest possible direct sunlight.

A course frequently adopted with negatives that are just a little hard is to "sun" the paper before commencing to print. The operation consists simply in exposing the paper to light till it is very slightly tinted. One corner is covered with some opaque object—a penny, for example—or the paper may be held between the finger and thumb by one corner. The object is to have one portion not acted upon by light, so as to be able to tell how far the sunning has gone by being able to compare the tint produced with whiteness. If the negative be not much too hard—only giving prints very

slightly hard when the frame is exposed in full sunlight—then “sunning” may have all the desired result; but if an attempt be made to overcome great hardness by excessive sunning, the results are sure to be bad. The paper should never have more than just a visible tint on it.

Some photographers prefer to expose the back of the paper till the front is slightly tinted, claiming that they thus get a better result in this case than sunning from the front.

If the photographer sensitize his own paper, he may get better results from one dense negative than he otherwise would by floating his paper only so long as is necessary to prevent it from giving mealy prints—that is to say, prints having a certain mottled marking in the shadows. An experiment may be made by floating for half a minute only. The paper must be quite damp before it is floated, otherwise it will not have ceased to curl before the floating is over. Paper to be used for printing from hard negatives should not be fumed.

Concerning the treatment of the negative, I may say that by far the best thing to do is to reduce it in the manner to be presently described. Strictly speaking, the reduction of the density of a negative comes no more within the scope of my present work than does the intensification; but whereas there is no perfect method of intensification known, and those imperfect ones which are known are very widely known, there is a perfect method of reduction which is by no means as well known as it should be. I, therefore, have no hesitation in giving the method which, I believe, is due to Farmer. First of all, however, let me repeat what I have already said. If the negative be lacking in shadow detail as well as being too dense in the lights, on account of under-exposure, there is no use in attempting anything. It is only when the exposure has not been too short and when the hardness is due to over-development that the process to be described is of any value.

If it has been observed immediately the negative has been fixed that it requires reduction, the process may proceed immediately.

If, on the other hand, the negative has

been dried, it must be soaked in water till the film is evenly wetted.

A fresh solution of hyposulphite of soda is made up. The strength does not very much matter. It may be that of the ordinary fixing bath, 5 ounces to the pint. A saturated solution of ferricyanide of potassium (red prussiate of potash) is made up. A few drops of the latter solution are poured into the hypo solution, and the mixture is applied to the negative in a dish with constant rocking as in developing. The result will be a slight reduction of density. If it be not enough, a little more of the red prussiate of potash is poured into a measure, and the mixture is added to it, and the whole is once more flooded over the plate. When sufficient reduction has been brought about the plate is washed.

There may be an objection to risking a valuable negative by treating it in the way described lest it be destroyed—although there is little danger of this unless the operator be very careless. The writer, therefore, tried to find a process somewhat analogous to the powder process used for the intensification of negatives. The idea struck him that the “single transfer” carbon process might be used in the same way as the powder process, but with the contrary effect, a reduction of contrast being brought about in place of an increase. Worked experimentally the method has succeeded admirably.

The first thing necessary is to so harden the film of the negative that there need be fear that it will be affected by the warm water used for developing the carbon image. It is indeed advisable, although not so necessary, to harden the film when intensification by the dusting-on process is to be performed. To effect this the negative is soaked for ten minutes in a saturated solution of chrome alum, it is then washed, and the film is dried. It is a curious fact that, although chrome alum acts at once on gelatine, its full effect in rendering it hard and insoluble does not appear to take place till the gelatine has dried. The side of the plate opposite to the film has, of course, to be dried and thoroughly cleaned.

A piece of sensitized carbon tissue is now damped and is squeegeed to the back of the negative, just as if the plate were a tempo-

rary support. The tissue is moved about in the water as little as possible, so as not to remove more of the bichromate than can be avoided. Pads of blotting-paper are placed both below and above the negative with tissue adhering, and a weight is laid on the top of all for a quarter of an hour. The tissue has now to be dried. This must be done, of course, away from daylight; but a fair amount of heat is allowable, as there is but little chance of running. When dry, an exposure is made through the negative, and development is carried on in the usual manner.

As in the case of the powder process used for intensification, the operator has considerable power over the gradation of the negative as well as over the extremes of contrast.

Unless the negative to be treated show extraordinary contrast, the "transparency" tissue should not be used. Probably the "photographic purple" will be found the best color for most cases.

*Local Modifications of the Negative.*—When it is required locally to modify a negative so as to increase artistic effect, the best plan is to place tissue paper at the back of it, gumming it on by the edges only, and to work on the tissue paper with crayon pencil and stump. It requires considerable artistic taste to do this effectually, but no very great manipulatory skill, as the work, being at a little distance from the film, does not print quite sharp.

It sometimes happens that a negative is faulty in that only one or two comparatively small portions of it are too dense, or even only one. In such a case the writer has proceeded with success in the following manner: A piece of thick white blotting-paper is pasted on to the back of the negative, and with a damp finger those parts of the paper opposite to the parts of the image, which are too dense, are gently rubbed down till, looking through the negative, with the paper next the light, it is seen that a harmonious result has been produced.

A negative so treated takes, as will readily be understood, a long time to print; but it gives excellent proofs if due care have been taken."

[Translated for The Philadelphia Photographer.]

## CONSEQUENCES OF THE HYDROQUINONE DEVELOPMENT—POSSIBILITY OF DISPENSING WITH THE RED LIGHT.

BY G. BALAGNY.

THE absence of fog constitutes for us the most remarkable and distinctive character of the hydroquinone developer. This character is such that it is absolutely necessary to separate hydroquinone from the two other developers hitherto known and used. When a sensitive film has received an aluminous impression foreign to that necessary to form the image like a veil coming from the doors of the dark-room, or of the lantern, etc., then, if to develop the cliché, either iron or pyrogallie acid is used, we may be certain to develop entirely and immediately those accidents which have left on the plate traces so energetic that it is fogged sufficiently to prevent the true image either to appear or to reach a sufficient degree of intensity when it has made its appearance. On the contrary, if we develop with hydroquinone these accidents are rarely disastrous, and we are very much astonished to find that a plate which seemed to be fogged, gave an excellent cliché, in which the veritable image alone appeared under the influence of the developer. In fact, with this development, the whites and the margins of the cliché are all admirably preserved, even with rapid emulsions, which, we must say, occurs much less frequently when iron or pyrogallie acid is used. Moreover, in developing clichés to make our experiments with hydroquinone, we found that we could approach without danger the side of our lantern having the most light; we found that there resulted no gray tint on the cliché, and that finally it was, after fixing, quite as pure as if we had taken all kinds of precautions, such as we used to take in developing with pyrogallie acid. From all these facts we were convinced that the hydroquinone development did not act the same as the two known developers, and, in our opinion, no comparison can be established between them. We are here in presence of facts altogether new and difficult to explain, and which it will be first necessary

to thoroughly study before seeking to find out their cause.

We have here offered to us the most curious things from a photographic point of view, which upset all that had been hitherto said on the reduction of the silver salts.

We took as a starting point the absence of fog in the hydroquinone development, to make a series of experiments, which we will now describe.

We commence by developing our clichés by using a lantern, the red of which was very pale. We developed in this way positives, counter-types, and clichés, and we may say that fog never appeared during the operation. What especially surprised us was, that in a developer which contained no retarding agent, our clichés had and always kept intolerable whites. We must say that it is this circumstance especially that emboldened us to be a little less prudent. We now put a simple *piece of candle* on the marble mantelpiece, and we place around it an orange-yellow paper, not red, which we had arranged so as to form a cylinder, by pasting one of the ends over the other. Let us add, that in all these experiments the opening, the shutting of the frame, and the development, were always made in the same light. We generally made a positive by contact which we exposed to gaslight for the tenth of a second. Here also the experiments were crowned with success; the prints were developed without fog, and with enormous intensity. To make these experiments we only used the flexible violet plates made by M. Lumière, the sensitiveness of which is well known. Notwithstanding this fact, which certainly was not to our advantage, the fog did not appear. We remarked, however, that better results were sometimes obtained with some emulsions rather than with others. But, in general, we obtained good results by using the primitive lantern which we have just described, and exposing for five seconds to gaslight. We made the same experiment by simply placing a board or a newspaper, folded in four, before the candle when opening and shutting the frame. The result was still the same. This emboldened us to perform the operation far from the said light, the wick of which was lowered, so as to show but a centimetre and a half of the

flame. When we say *far*, we mean on a table at a distance of two metres at the most from the light. We again exposed for five seconds to gaslight, and the result was still excellent. We then made the experiment in an ordinary room with closed curtains, and consequently poorly lighted. Here the light was no longer artificial; it was white light, and, nevertheless, the experiment was still successful. We renewed the experiment in a better lighted room, and in daylight, and we then obtained a fog, but not as pronounced as might be thought. It results from all this that it is possible to work in a light much greater than has hitherto been used. But the developing must be done with hydroquinone. It may be said, without attempting to explain it, that the luminous impressions, foreign to that which have formed the image, do not appear in developing, or at least appear so little that they do not injure the image, and this certainly arises from the fact that hydroquinone perfectly preserves the whites. Owing to this property *it is possible to overexpose in an inconceivable manner*, clichés, or positives by contact. No fog occurs. But if the exposure has been too long, the image is reversed, and we immediately have a countertype. That is to say, if we have printed under a negative for an hour and a half, for example, we obtain a negative when the operation has ended. At the moment of placing the plate in the bath we distinctly perceive the positive print, which will be developed, but which will not show itself; on the contrary, it will disappear to give room for the negative print, which last will reach the desired degree of intensity. We must say, however, that to succeed well with this experiment, it is better to operate in ordinary red light. These results induced us to make a final experiment. Inasmuch as with a long exposure we succeeded in copying exactly the subject given to us, a positive into a positive, and a negative into a negative, we thought also that we might be successful in reversing the image behind a sheet of black paper.

This requires explanation: In a positive frame we placed a sheet of very thick black paper, such as that used in wrapping plates, and measuring 13 x 18 centimetres. Over it

we placed a flexible plate 18x24, so as to form a margin all around the black paper. We exposed to diffuse light for one and a half hours, and we then placed the plate in an old hydroquinone bath. The border commenced by becoming black. The non-impressioned centre remained white. But soon the border whitened at the same time that the non-impressioned part blackened, until it became absolutely opaque. The image was again reversed, although that portion of the flexible plate corresponding to the black paper had not been impressioned. The margin had become white compared to the centre, and it was possible to fix it in the hyposulphite. Nevertheless, we must admit that this white was not entirely immaculate, and that the long exposure of one and a half hours to daylight had finished by slightly fogging the image in question.

It results from all this that it is possible by a long exposure to easily obtain in the camera a positive instead of a negative. We see here, we think, the halting place to be passed over before obtaining colors. In any event, and without aspiring at once to such a result, we may say that we will at least gain, in developing with the hydroquinone, the immense advantage of no longer fatiguing our eyes, and of being able to work with a much brighter light than that of our red lanterns. Moreover, in travelling we can change our plates in places which we could not formerly have used. For instance, in the dark passage of a hotel, in any poorly lighted place, anywhere having a light which to make a passable cliché would require several hours of exposure. In a hotel chamber the curtains may be closed, and the light remaining in the room reddened by placing a sheet of red paper before the candle. In a church, a dark corner will be found permitting the change. These are merely examples; first experiment, and the result will be astounding.

In all that we have said above we have only considered posed clichés. The weather is so bad that we have not been able to try instantaneous pictures by this method. We fear that in this case the fog will show itself, but for posed clichés, we repeat, there need be no fear.—*Moniteur*.

## NOTES ON THE CRYSTAL PALACE PHOTOGRAPHIC EXHIBITION.

BY W. E. WOODBURY.

GREAT credit is due to the Executive Committee of this Exhibition for having got together one of the completest exhibitions that has ever been held in this country. Half an hour's ride brings us to the Crystal Palace station and another ten minutes into the centre of the palace.

Upon entering we are at once in the midst of a large collection of apparatus. First and foremost being the exhibit of Messrs. Maurer & Co., who show among other things some ingenious portable studios, Fries' patent automatic printing machine by means of which several hundreds of prints upon bromide of silver paper may be made in a very short time and their new Mاریotype for architectural plans. Our attention is next attracted by some tricycles and bicycles specially adapted to carry photographic apparatus which may be readily attached to or removed from the machine.

Messrs. Mawson and Swan have some wonderful examples of cheap sets; and among other novelties are boxes for using the magnesium flash light and Bolton's sensitive collodion emulsion for transparencies and also landscapes, etc., also for making clouds, reversed and pellicular negatives and strip films. Some excellent specimens of work made with this emulsion were shown.

The following are the directions for use.

*Preparing the Glass.*—Let the glass be thoroughly cleaned and polished with powdered talc, the surplus powder being carefully dusted off. Edge the plate to the depth of an eighth of an inch with solution of pure India rubber in benzole, three grains to the ounce, applied with a small piece of flannel, sponge, a tuft of cotton wool, or camel-hair pencil. Immediately before coating dust carefully with a broad camel-hair brush.

*Coating the Plate.*—At least ten minutes before use, shake the bottle thoroughly, in order that every particle of bromide of silver that may have settled to the bottom may be reemulsified. If the bottle be nearly full it may be needful to temporarily remove a

portion of the contents in order to effect this.

Apply the emulsion in the same manner as collodion, flowing it regularly over the surface without allowing it to pass twice over the same portion of the plate. It is recommended to drain the surplus into a clean bottle, and not back into the original stock; this not only helps to avoid dust but gives greater uniformity in coating. Rock the plate gently until thoroughly set, in order to avoid crapy lines and unevenness, and then set it aside for a few minutes in a cool place free from dust and carefully protected from light of any sort. After three or four minutes the plate may be transferred to a drying box and dried with or without artificial heat; but warmth should not be applied immediately after coating. The plates will dry in an hour or two in a closed box or cupboard without the application of heat.

*Exposure.*—By contact under a negative and at a distance of a foot from a gas flame the exposure will vary from thirty seconds upward according to the density of the negative and the tone required. The longer the exposure, with suitably restrained development, the warmer the tone. For exposures in the camera for either enlargements, reductions, or direct landscapes the time will depend upon the optical conditions and circumstances of light. In sunlight, and with a lens of aperture  $f/20$ , an open landscape will require from twenty to thirty seconds exposure, but far more may be given without danger.

*Development.*—Make the following solutions:

*A.*

Pyrogallic Acid . . . 48 grains.  
Neutral Sulphite of Soda . .  $\frac{1}{2}$  ounce.  
Warm Water, to make . . . 1 "

*B.*

Liquor Ammonia, sp. gr. 0.89 1 drachm.  
Neutral Sulphite of Soda 1 ounce.  
Water, to make . . . 2 ounces.

*C.*

Bromide of Potassium . . 20 grains.  
Water . . . 2 ounces.

First flood the plate with a mixture of good methylated alcohol and water in equal

parts and allow it to soak while the developer is being mixed. For a lantern or quarter plate two drachms of solution will suffice, and half an ounce will comfortably develop a plate  $7\frac{1}{2} \times 5$ . For each drachm of developing solution take 5 minims of *A* and 1 each of *B* and *C*, and having washed the plate until all traces of the alcohol have disappeared, flow the mixed solution evenly and quickly over the surface, holding the plate in the hand or on a suitable holder. The image will appear very rapidly but will possess little force; the unexposed portions of the film should remain perfectly clear, and if any tendency to fill up or veil should appear add at once more of *C*. If on the other hand the image be slow in coming up, add not more than 1 minim per drachm of *C*. When the picture is out in all its details, reinforce the developing solution, or better, make a fresh solution, using 5 mims each of *A*, *B*, and *C* to each drachm, which will rapidly bring up the strength. It should be borne in mind that, though the plates will not bear a strong application of ammonia in the early stage of development, much more may be used subsequently, but the quantity named should not be exceeded. If that treatment will not produce the necessary force, silver intensification may be resorted to, and this has the advantage of conferring a tone that is preferred by many to that produced by alkaline pyro alone.

*Intensification.*—Let two solutions be prepared as follows:

*A.*

Pyrogallic Acid . . . 120 grains.  
Citric Acid . . . 30 "  
Water . . . 2 ounces.

*B.*

Nitrate of Silver . . . 30 grains.  
Nitric Acid . . . 10 minims.  
Water . . . 2 ounces.

Before applying this intensifying solution see that the plate is thoroughly washed, and in order to be certain that all the alkali is removed, let the solution *A* be flowed over the film before the addition of *B*. For each drachm of solution take from 1 to 3 minims of *A*, and having flooded the plate with it add the same quantity of *B* and continue

the application until the desired effect is obtained. This may be used either before or after fixing, but if the latter the greatest care must be taken that the fixing solution—especially if hypo—be thoroughly removed.

*Fixing.*—For this purpose either hyposulphite of soda or cyanide of potassium may be used. The former acts more rapidly and has less effect in reducing the image, but the latter gives a better surface color. The strength of the hypo may be four ounces to the pint of water, and that of the cyanide ten grains to the ounce.

*Using the Emulsion Wet.*—The emulsion may be used immediately after coating the plate and without drying if desired, the plate being simply washed before development to remove the ether and alcohol from the film. In this case the rapidity will be the same as if dried, but if greater speed is required the plates are allowed to set thoroughly after coating, are then washed to remove the solvents, and finally immersed in an accelerating and preservative solution according to either of the following formulæ:

#### No. 1.

Gelatine . . . . .	60 grains.
Carbonate of Soda . . . . .	10 “
Water . . . . .	10 ounces.

#### No. 2.

Freshly Ground Coffee . . . . .	120 grains.
Carbonate of Soda . . . . .	19 “
Pure Glycerine . . . . .	1 ounce.
Water . . . . .	10 ounces.

In making No. 1 let the gelatine be swelled and dissolved in about two ounces of water, the carbonate of soda added and the whole boiled for five minutes in a water bath and afterward made up to ten ounces. For No 2 the coffee is boiled for five minutes with the carbonate of soda and water, the glycerine stirred in and the whole very carefully filtered. The plates may be kept immersed in either of these solutions until required, or may be drained and transferred to a grooved box to protect them from dust. They may also be placed in the dark slides for out-door use, when they will remain moist for at least a day, but precaution against dust must be taken.

*General Remarks.*—The films are so tender that extreme care must be taken not to touch or damage them during the various operations. If the emulsion become too thick to flow readily it must be thinned with a mixture of ether and alcohol in the proportion of 3 to 1. *N.B.*—It is of the *greatest importance* that the bottle be well shaken *some minutes before coating the plates*, a portion of the emulsion being temporarily removed if necessary, in order that any sediment of bromide of silver may be re-emulsified.

Mr. Charles Geard exhibits an American air brush machine and some wonderful retouching work is done upon bromide enlargements in the presence of many interested and puzzled observers, that speaks well for the efficacy of the machine for photographic retouching purposes.

The Vergara Film Company, late the Woodbury Tissue Company, show some specimens of the new Vergara film, the Vergara patent dark slide, Woodman's patent boxes for films, and the Vergara album. The company also exhibit one of the late Mr. W. B. Woodbury's tourist cameras. Notwithstanding the fact that it was patented nearly thirty years ago, it is no more than equalled by any of the present “compact cameras” on the market.

We now pass forward through a number of exhibits, all possessing more or less interest, when we are at once brought to a standstill by a bright flash and looking toward the spot we are at once attracted by a demonstration of the magnesium flash for photographic purposes by the well known firm of pyrotechnists Messrs. C. T. Buck & Co.

In a glass case we see a little camera invented by Mr. Wyndham Payne Galloway the eminent hydraulic engineer. By a very ingenious arrangement of drop shutters and mechanism for passing the plates rapidly from the drum to the camera a series of instantaneous photographs may be taken.

While examining this ingenious piece of mechanism we are hailed by no less a personage than the genial Mr. Walker of the Eastman Dry Plate & Film Co., by whom we are at once dragged off to view some truly magnificent cameras and apparatus

made by the Scovill American Optical Co., and lately imported into this country by the Eastman Co. The Eastman roller slides and film carriers accessories, Eastman enlarging cameras, stripping film, etc.

We are next shown some beautiful specimens of a new process about to be introduced into this country by the Eastman Co. under the name of Eastman's Transferotype Paper, which appears to us to be the best thing of the day. Contact or enlarged prints are made upon this paper in precisely the same manner as upon the well known permanent bromide paper (the same emulsion being used for both). After washing, the print can be transferred to opal or plain glass, plaques, tiles, lamp shades, wood, canvas, lantern slides, window transparencies, engraving blocks, etc. It is also serviceable for glacé prints. The operation is exceedingly simple and the results we were shown surpassed anything of the sort we had ever seen before. The success of this process is as certain as the prints are beautiful.

The following are the directions for using this transferotype paper as given by the Company.

*Developer.*

No. 1.

Oxalate of Potash . . .	1 pound.
Hot Water . . . . .	48 ounces.
Acetic Acid . . . . .	1 ounce.

No. 2.

Protosulphate of Iron . .	1 pound.
Hot Water . . . . .	32 ounces.
Acetic Acid (or Citric Acid $\frac{1}{2}$ oz.) . . . . .	$\frac{1}{2}$ drachm.

No. 3.

Bromide of Potassium . .	1 ounce.
Water . . . . .	32 ounces.

These solutions are kept separated and must be mixed only for immediate use.

*To Develop.*—Take in a suitable tray—No. 1, 6 ounces; No. 2, 1 ounce; No. 3,  $\frac{1}{2}$  drachm. Mix in the order given; use cold. After exposure, soak the paper in water until limp; then immerse in the developer. The image should appear slowly, and should develop up *strong, clear and brilliant*. When the shadows are suffi-

ciently black, pour off the developer and flood the print with the *clearing solution*, acetic acid, 1 drachm; water 30 ounces.

*Do not wash* the print after pouring off the developer and before applying the clearing solution. Use a sufficient quantity to flow over the print, say 2 ounces for an 8 x 10. Allow it to act for one minute and then pour it off and apply a fresh portion; repeat the operation a third time, then rinse in pure water and immerse for ten minutes in the *fixing bath*, hyposulphite of soda, 3 ounces; water, 16 ounces. Alum must not be used in the fixing bath, as it will prevent the transferring of the print. After fixing, wash thoroughly for half an hour in six or eight changes of water. The print is then ready for *transferring*.

Lay the wet print face down upon the object to which it is desired to transfer the print. The surface may be polished or ground glass, porcelain, wood, prepared canvas, ivory, or any substance which will withstand the action of hot water and allow the image to adhere. It must be perfectly clean and free from grease or oil. Squeegee the wet print carefully into contact with the surface, and put it under a blotter and weight to dry. When dry pour hot water upon the back of the picture until the paper blisters, and then run a pin under one corner of the paper and pull it gently away. After removing the paper, gently rub the surface of the picture with a tuft of cotton moistened with warm water and set away out of reach of dust to dry.

The paper may be stripped at any time *after* it has been *thirty minutes* under the blotter, but it is safer to allow it to thoroughly dry.

The proper temperature for the hot water depends greatly upon whether the paper is dry or not; if dry it should be about 160° to 180° F., if only thirty minutes have elapsed after squeegeeing down, the water should be about 130° F., and the temperature gradually raised by the addition of boiling water until the paper blisters.

*Thirty minutes* is the least time that should be allowed for drying; otherwise there is danger of the picture leaving the support.

*Clean Dishes. Clean Hands.*—The faint-

est trace of hyposulphite of soda or of pyrogallie acid is fatal to good results in developing transferotype paper, and the operator cannot be too careful to avoid any contamination. The tray used for developing with oxalate should never be used for anything else.

*Glacé Prints.*—Contact prints made on *transferotype paper* have a brilliant glossy surface and may be mounted and used as ordinary bromide prints without burnishing.

*Lantern slides* may be printed by contact, using lamp or gaslight, or in the camera using daylight. If made in the camera the transferotype paper should be supported by an Eastman carrier (which can be obtained in any standard size of any stockdealer). Prints intended for transparencies should be developed further than a print that is to be viewed by reflected light; in the former case the progress of development must be examined by looking *through* the print, and in the latter by looking down upon it as it lies in the tray. Many photographers have a large amount of lantern slide glass remaining from failures in making slides on dry plates; this glass can be made use of in this process.

*Window transparencies* enlarged or contact prints should be transferred to a clear glass and backed up by a piece of ground glass.

*Opals* for framing or for window transparencies are easily made by transferring the picture to the ground surface of opal glass; opals made by this process are much richer and more brilliant than when the emulsion is coated directly on the glass. They are also more permanent as the washing is more thorough owing to the hot water used in the transfer.

*Plaques, tiles, lamp-shades,* and various articles may be easily and cheaply decorated either as a basis for water color work or simply for the photographic effect; such articles when given a coat of damar varnish and heated in an ordinary oven will bear washing.

*Enlargements on canvas* for oil painting, made by this process are superior to those made by any other process. The canvas undergoes none of the photographic operations, and cannot, therefore, become con-

taminated with hypo or iron. As the canvas requires special preparation, it is recommended that the print be made and finished at the Eastman factory, where the work can be skilfully done at moderate prices. Price-lists sent on application.

*Engraver's Blocks.*—Transferotypes can be put on wood blocks for engraving. The film being only about 1-4000 of an inch thick it does not interfere with the graver. The image being stronger and clearer than produced by any other process, the results are correspondingly better.

Passing through the admirable exhibit of Messrs. Watson & Son we are in the centre of the palace at the end of the apparatus division and the commencement of the art division.

Of the latter we have but little to say. Like many others we were disappointed to see so few praiseworthy exhibits, the majority having been transferred from the recent exhibition at Pall Mall.

Van der Weyde is certainly the finest portrait photographer in this country and the case of portraits or platinotypes are, of a certainty, the finest we have seen.

M. Nadar's portraits on Eastman bromide paper show what can be done upon this production. And Mr. George Davison's (the secretary of the London Camera Club) pictures are too well known and envied by his brother amateurs to need comment.

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## A PROCESS VENDOR UNVEN- DORED.

THE first communication below came to one of our old subscribers, and he sent it to us. Then we obtained "the dark secret" which follows, and without comment present it to our wise readers.

No. 1.

### MY BROTHER PHOTOGRAPHER:

It is a well-known fact, that photographers for years have been desirous of some method for preparing sensitized albumen paper, so that it can be kept for weeks or even months, and yet be just as good in every respect as freshly silvered paper.

That desire has at last been realized. In a series of experiments the past few years, I

have discovered a method of preparing silvered paper which will keep for months, and which is no more trouble to prepare than in the ordinary way.

I have paper in my studio now, which has been silvered five months, and is just as perfect as the day it was done; prints quicker, tones easier, and with less gold than by the old method, and prints can be kept many days before toning.

Paper prepared by this formula, has been in constant use in my gallery for the past year, and I could not do without it. It is a great saving of time, as your paper can be prepared in dull or stormy weather, and then you always have paper ready for proofs; and in the winter months, when the days are short, you can commence printing in the early morning light.

It will pay for itself many times over, in the saving of time, silver, paper, and gold. The waste of silver alone, in pouring into the tray and back again every day, would more than pay the small cost, to say nothing of the convenience of having your paper always ready for use.

Pages might be written of its merits, but "the proof of the pudding is in the eating thereof."

I will send you my formula, with full instructions how to prepare your paper, for \$1.00, which I know you will never regret, and will repay you many times its cost.

Yours fraternally,

E. P. KELLOGG.

265 MAIN STREET, HARTFORD, CONN.

No. 2.

#### *Directions for Preparing Silvered Paper.*

—Silver your paper on any good working bath, with a slight trace of acid; dry and fume as usual.

Now provide a tin box of some kind, with a tight-fitting cover, a common tin wash-boiler is as convenient, as cheap, and as good as anything. Make a false bottom by nailing a half dozen strips on two cross pieces three inches high from the bottom.

Now make a paper roll of thin cardboard about  $2\frac{1}{2}$  inches in diameter and 18 inches in length—you can have two or three of these rolls. After your paper is fumed sufficiently, roll it on the paper rolls. Put in

the bottom of the boiler or can, three pieces of hard unslacked lime, about the size of your fist; place in the false bottom, and over this a clean paper; place your paper which you have rolled up in the boiler, and keep the cover on as tight as you can by putting a cloth over the top of the boiler and then pressing the cover down.

It is well to have your paper on two or more rolls, as when you wish to use it, you can take out one roll and then close the cover; if you do this, your paper will always be dry and white. When the lime becomes slacked, put in more, do not be sparing of the lime as it costs but three cents a pound, and a few pounds will last a long time.

If you do not wish to tone your pictures at night, place them in the boiler, they will keep any length of time.

It is a good plan to keep two small tin boxes to put your prints in after they come from the frames, and to put your paper in after it is cut up for printing. You can place a piece of lime in each box, with a paper to cover it. Put your prints and paper into these boxes, and close to keep out the air.

Paper prepared in this manner will keep for months, only keep the cover tight, and plenty of unslacked lime in the bottom.

If these instructions are not plain enough, or you get into trouble, write me at once (enclosing stamp), and I will cheerfully answer all questions.

Yours truly,

E. P. KELLOGG.

265 MAIN STREET, HARTFORD, CONN.

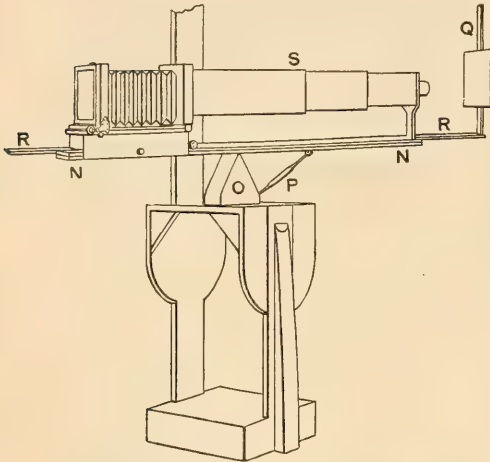
### PHOTO-MICROGRAPHY; AN APPARATUS HINT.

BY DR. A. G. FIELD.

WITH your permission I wish to suggest a change or two in connection with my article on page 75 (Feb. 4th) of your current volume.

The awkwardness of my stand for copying was obvious, but with the following-described improvements it will be found convenient for the ordinary use of either the microscope or camera alone, as well as for copying and micrography.

N N, one of the uprights cut off three feet above the base, and attached by hinges to the apex of the wedge-shaped block O with a *gudgeon* on its base which fits snugly into the hole in centre of the supplemental base for lateral movement, the vertical movement being regulated by the screw brace P. This makes a camera stand, with



both lateral and vertical inclination, and adjustable as to height, while the board upon which the camera-box carrier slides is long enough to support the telescopic boxes S when used in copying either reduced or enlarged images.

The upright Q for carrying the picture to be copied, is attached at right angle to the slat R R, which passes beneath the camera box carrier, and the operator who wishes to bring all copies to a uniform size as for lantern slides, regardless of the size of the original, is enabled to do so seated at the focussing screen where he regulates with the slat and bellows, the distances respectively between the lens and picture, and lens and ground glass screen.

### A DANGER AHEAD.

WE have received the following :

DEAR SIR: I enclose a clipping from the *New York Herald*, which you may have noticed, but for fear that it might not be noticed by photographers in general, I take the liberty to call your attention to it. I

know that in years past you were always ready to defend photographers in their rights. This bill was introduced March 6th, and referred to the Judiciary Committee. It seems to be thought here that the bill will pass the House. As it reads, a photographer is prohibited from exhibiting photographs of ladies in his own gallery; we would be in a sad plight with such a law. Should not the officers of the Photographic Association take hold of this, and have the bill amended so their rights or privileges should not be interfered with? I have spoken with two Congressmen about it, and they seem to think it could be easily passed with an amendment to suit photographers, but still prohibiting the indiscriminate use of pretty faces for advertising. I think you are the proper person to manage the affair, if anything is to be done. I am in favor of a law which will protect people from being photographed against their will.

Yours truly,

CHARLES PARKER.

477 PENNA. AVE., WASHINGTON, D. C.

The following is the clipping:

WASHINGTON, March 5, 1888.

"Several days ago Representative Thomas, of Illinois, who has been an invalid for some months, stepped into an avenue drug store. While the salesman was executing the Congressman's order the latter espied a large chromo-lithograph of Mrs. Cleveland, which was used to advertise the curative powers of a particular nostrum.

"Captain Thomas is a Republican, and personally acquainted with the inmates of the White House, but his indignation was aroused that any lady's picture should be used for so vulgar and improper a purpose. Nor was he at all backward in expressing this indignation in vigorous language, in course of which he assured the druggist that before many days he would introduce a bill in Congress making it a misdemeanor to publicly display any woman's picture after that fashion.

"True to his promise, Captain Thomas prepared the bill, which will be presented as a special privilege upon the assembling of the House to-morrow. The full text of the bill is as follows:

*"A Bill to Protect Ladies.*

"Whereas the wives, daughters, mothers, and sisters of American citizens, including leading officials of the several States and Territories, are entitled to protection from the vulgar and authorized use of their likeness, produced or reproduced by photographs, lithographs, chromos, or other manner or processes for advertising purposes; and

"Whereas the likeness or representation of the wife of the President of the United States, with a coarse and questionable inscription thereunder, is now being used as an advertisement for some patent medicine at present offered for sale in the nation's capital and elsewhere, to the detriment of social decency and morality; therefore

"Be it enacted, etc., That any person or persons, for themselves or others, or for any corporation, who shall publicly exhibit, use, or employ the likeness or representation of any female living or dead, who is or was the wife, daughter, mother, or sister of any citizen of the United States, without the consent in writing of the person whose likeness is to be so used, shall be guilty of high misdemeanor, and shall, upon indictment, be fined not less than \$500 nor more than \$5000, and stand imprisoned until this fine and costs are paid."

Upon receipt of the above we addressed a note to Senator Thomas, congratulating him upon the service he was about to do photographers by preventing chromo-lithographers from stealing from their pictures, and depriving the careful artists of their just profits. We also requested him to so word his proposed bill as not, by any vagueness in it, to prevent reputable artists from exhibiting specimens from their negatives, as has always been their privilege when not requested otherwise.

**SOCIETY GOSSIP.**

THE Second Annual Joint Exhibition of the Society of Amateur Photographers, of New York, the Photographic Society of Philadelphia, and the Boston Camera Club, open to all photographers, foreign or American, professional or ama-

teur, will be held under the auspices of the Boston Camera Club, May 7 to 12, 1888, at the gallery of the Boston Art Club, Newbury and Dartmouth Streets, Boston. A magnificent display is expected. Committee of Arrangements, Edward F. Wilder, George E. Cabot, Francis Blake, C. W. Canfield, John G. Bullock. A circular of the conditions and rules, with full directions for exhibitors and visitors, may be had on application to

EDWARD F. WILDER,  
Chairman.

50 BROMFIELD STREET, BOSTON.

THE St. Louis Association of Amateur Photographers has decided to change its name, and will hereafter be known as the "St. Louis Camera Club."

Very truly yours,  
W. M. BUTLER,  
Secretary.

THE members of the Grand Rapids Camera Club were entertained by Mr. and Mrs. E. E. Duyden on the occasion of the first annual meeting, Monday, March 19th. Topics for future discussion were chosen. The following officers were elected for the ensuing year:

*President.*—Dr. J. C. Parker.  
*Treasurer and Librarian.*—N. F. Avery.  
*Secretary.*—C. E. Duyden.

A cute little souvenir of the occasion was presented by the host. It consisted of a photo of the Society's by-laws with a fancy cover embellished by a neighborhood view.

**OUR PICTURE.**

WE return now to the selections from the work of the prize takers at the Chicago exhibition, and present another quartette reduced from pictures shown there.

The first of the set is a very effective picture by Messrs. Monfort & Hill, Burlington, Iowa, and is entitled "The Maniac." The second is Mr. Landy's well known "Man Know Thy Destiny," which secured the Blair cup for the proud artist. It reminds one of the "Study of Dr. Faust," in Mr. Irving's rendition of Gœthe's wonderful story. The third of our group, graceful and lovely in conception—"The Harpist," is by Mr. J. C. Strauss, St. Louis, Mo. Messrs.

Knaffl & Bro., two young artists of Knoxville, Tenn., finish our mosaics with "The Potter at the Wheel," a well managed picture, which, in some particulars, is more rare than any of the others. Here then we have a study from the very practical side of life; one from the musical, one from the very serious, and, alas! one from the saddest of all the sad phases of human existence. They all supply study, for every one of them is fraught with useful lessons. From their creators we have the notes which follow. Mr. Landy has already been so generous in his gifts to the cause, that he avers that he has nothing new. The others will speak for themselves now or presently.

The prints, as usual, were made upon Messrs. E. & H. T. Anthony & Co.'s importation of N. P. A. paper, by Messrs. Roberts & Fellows, No. 1125 Chestnut Street, Philadelphia.

#### NOTES FROM THE ARTISTS.

In regard to the picture of "The Potter at the Wheel," we made it with a No. 7 Euryscope lens, on a Cramer "lightning" plate; size, 18 x 22. The walls we had plastered, and broke out the places, as the picture shows. We contrived the old window sash and other accessories ourselves. It required a great deal of work and time. We are very young men (less than twenty-four), and we always look forward to the coming of your journal with interest. The February number interested us very much. The sketches from Burnet are very fine. We have the *Art Essays*, by Burnet.

KNAFFL & BRO.

In regard to our methods, we will state that the manipulation throughout contains nothing new. It is the same old story. A Euryscope was employed in making the negative of the "Maniac;" Cramer plate (sens. 30) was used, with the ammonia developer. The pyro is added to the developer with a mustard-spoon, in a dry state, the exact weight being known. One ounce of liquid ammonia to eighty ounces of water, is a stock solution; also, a solution of bromide of ammonium is kept on hand. This is the entire developing outfit. We change the proportions of each to obtain different

effects, sometimes by the addition of plenty of water to the developer. Alum is never used in the fixing bath, but a fresh solution of alum is made each day, and the negatives are placed in it for several minutes after fixing, then well washed.

A north skylight, with a side light nearly reaching the floor, and arranged so that it can be worked in any direction. We make a study of each subject, and obtain various effects in lighting by moving both camera and sitter, until the desired results are obtained. We use our own judgment in regard to the position, and are not guided by what the sitter may suggest.

"The Maniac" was suggested by the poem so named, to be found in McGuffey's *Sixth Reader*.

A few words regarding proofs. Never in a single instance are proofs allowed to leave the gallery. We adhere strictly to this rule. It can be accomplished, and how much nicer it is, besides saving the photographer. It makes us feel better to do business in this way. We advise every "knight of the camera" to adopt this plan at once, for it works like a charm with us, and as a result very few resittings are required. The public soon becomes used to this method, and will like the photographer better for it.

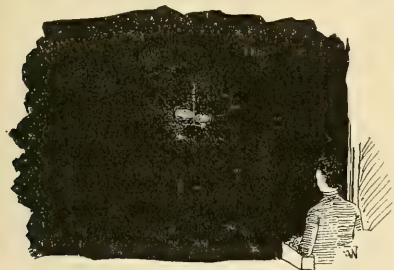
One more word about sittings. Always listen to what your patrons are telling you in regard to their positions, and their ideas of pictures, and never contradict their statements. In making the negative, take it to suit yourself, in your own judgment, what you think will be most pleasing, for who else should know but the artist? The negative will then be satisfactory both to the operator and to the patron.

Yours, truly and fraternally,  
MONFORT & HILL.

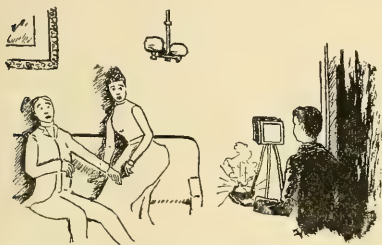
#### THE HUMOR OF IT.

THE NEW FLASH LIGHT IN THE HOME.—It was late when Tommy got home from the meeting of the Camera Club. They had had a demonstration of the wonderful new flash light system of taking photographs, and he had begged and brought home some of the actinic compound. The gas was still burning low in the parlor, and the idea came

to him of testing the compound on an interior. How nice it would be to show the family the plate, and tell them of the latest photographic marvel, at breakfast to-mor-



row! He quietly set up his camera, focussed on the turned-down gaslight, got a saucer and a match, and touched her off.



Sister Cora and Mr. Spooner are enthusiastic over the new discovery. F. H. W.

IN THE CHEMICAL LABORATORY.—“Professor, what has become of Tom Appleton? Wasn’t he studying with the class last year?”

“Ah, yes; Appleton, poor fellow! A fine student, but absent-minded, in the use of chemicals, very. That discoloration on the ceiling; notice it?”

“Yes.”

“That’s him.”—*Tid Bits.*

WELL, we’ve found a use for the trade dollar at last. What is it? Why as a picture frame. No, it isn’t as expensive as you imagine, for the reason that it takes only one to do it. Let me clear up the mystery. Here, you see is one of the long neglected trade dollars. Brightly polished as it is, it doesn’t make a bad looking coin. Now, I just press this little spring so, and the centre of the reverse side of the piece flies open, and shows you a handsome little glass protected

hollow, in which you place the photograph of your very best girl. We can only use trade dollars, however, as the law distinctly forbids the mutilation of the currency for any purpose whatever. Trade dollars not being a legal tender thus slip out of the law’s protection and fall into our hands.—*Jeweller, in Jeweller’s Weekly.*

The *laity press* is supplying a lot of stories about us now. Here are some.

A PHOTOGRAPHER’S STORY.—“I can do almost anything with a sitter,” said one photographer who hadn’t spoken before, “but I had one case that I remember where it was impossible to keep the sitter still. After repeated trials and the use of the head-rest, I at last succeeded, as I thought, in impressing upon the sitter the necessity of keeping absolutely quiet. It was in the old days of the wet-plate method, and when an exposure of twenty seconds had to be made. I had my subject as I wanted him, and took off the cap. I left the room for a moment, and returning found everything all right apparently—apparently, I say; but when I went into the dark-room and developed the plate, I found it most terribly blurred. It looked as if the sitter had turned a handspring or thrown a somersault. When I went back I was mad.

“‘What did you do?’ I asked.

“‘Nothing,’ was the answer. ‘Why?’

“‘Look at the plate,’ I said, ‘and then tell me you didn’t move.’

“Here my sitter began to laugh at his picture. ‘Well, I swear, I wouldn’t a’ thought that just going over to the window to spit would have done all that, because I sat right down again.’”—*Germantown Telegraph.*

GETTING A PLEASANT EXPRESSION.—Photographer (to sitter), “I saw you at church last Sunday, Miss Smith.”

Sitter.—“Oh, did you?”

Photographer.—“Yes, and also your friend, Miss Brown—if you could raise your chin a trifle, thanks—and what an atrocious looking hat she had on (after a pause), there, Miss Smith, it is over, and I think we have caught a very pleasant expression.—*Germantown Telegraph.*

## Editor's Table.

*The Year Book of Photography and Photographic News Almanac* for 1888, came to us late this year—all the better. It gives us a fine dessert after the hasty gorging of those which preceded it. The editor, Mr. T. BOLAS, has lost none of his power of choosing and compiling. The embellishment is a photogravure of Queen Victoria, taken in August, 1887, by Gustav Mullins.

MAX PETSCH.—We give place elsewhere to Dr. Vogel's touching remarks on our lamented friend Max Petsch. We can second every sentiment expressed. There was a time—in the seventies—when Mr. Petsch stood as the head photo-teacher of the world. The whole craft in America drew inspiration from his "Berlin Cartes" which we personally imported and scattered. His death has caused a sad vacancy in art circles.

"MARCY'S SCIOPTICON."—Mr. L. J. MARCY, its inventor, was the first one to produce a successful oil lantern, and he has added many improvements from time to time. In the quality of its light, and in its mechanism it has no equal. The lime and electric light are also used with the Sciopticon, and it is also useful for photo-enlarging purposes. See advertisement.

A BRILLIANT BIRTHDAY OCCASION.—On February 22d, Mr. WASHINGTON IRVING LINCOLN ADAMS, the talented young editor of the *Photographic Times*, celebrated his birthday by a gathering of his friends at his home in Montclair, N. J. A feast of reason and a flow of soul ensued, together with no little photographic confab. The poet laureate was also there and read a commemorative poem which was highly commended. Its appropriateness and general style may be understood from the verse which we quote:

"Then here's to the health of the lover  
Of Emerson, Thoreau, and Burns.  
May philosophy, nature, and rhythm,  
So oft as the season returns,  
Mix for him a healthful potation,  
Richly flavored with Cupid's own hand!  
And may Washington, Irving, and Lincoln  
In this Adams be given our land."

The whole affair was a very happy one, enjoyed by all.

THE new "Ultra Rapid" plate just introduced by Mr. CARBUTT, is a wonder. Not only is the sensitiveness equal to any in the market, but the quality will match whatever else there is. Some prints from negatives made on the "Ultra Rapid" look more like wet plate pictures than anything we have seen from dry plates—they are lovely. Mr. Carbutt assures us that he has not attained this longed for result by formulae, nearly so much as he has by the thoughtful manipulation of mixtures already known.

DONATION of slides wanted, for mission work in the Northwest. Any parties having surplus lantern slides can help a good cause by donating them for use among Indians and others. Parcels can be sent to us to forward and will be acknowledged.

*The International Annual of Photography* will be issued in July by Messrs. E. & H. T. ANTHONY & Co., New York. It is to be edited by Dr. A. H. Elliott, editor of the *Bulletin*, and Mr. W. Jerome Harrison. It is to be on a new plan and will contain contributions from all over the world. We have no doubt it will be a splendid volume.

MESSRS. H. C. CADY & Co. have succeeded Messrs. P. Smith & Co., at Columbus, Ohio. Central Ohio Stockhouse.

CAUTION.—Do not be in a hurry to buy any processes of any one with whom you are not acquainted. It is *safe* to make this your rule.

MR. EMIL FRY, Corsicana, Texas, one of the quiet, but most practical of our earnest workers, will begin a series of useful papers in our next number.

BURNET'S *Essays on Art*.—Several excellent reviews of this admirable instruction-book, in the English periodicals, has brought us such a large number of orders from England, that we begin to think they will eventually equal the large sales in America. Buyers and readers of Burnet write thus:

"It is indeed an excellent educator."—EMIL FRY, Corsicana, Texas.

"Send me a copy also for my pupil. He wants to learn to make views. Is not that a good way to teach him?"—G. H. FOWLER, Charlotte, Mich.

"It shall be permanently placed in our library. It is just the sort of book we require."—LYONEL CLARK, Secretary of the London Camera Club.

"It will fill up an aching void."—F. S. SMEDLEY, Berea, Ohio.

"I am delighted with it. It is a splendid work."—FRANK THOMAS, Springfield, Mo.

MR. ENOCH ROOT, Chicago's talented art critic has favored us with copies of the *Evening Herald* containing some admirable papers by him. One, "On the Water Color Examination at the Art Institute" is full of instruction. We wish we had space for *all* of the other on "American Taste in Art." It is a noble defense of the ability of the American picture lover—to understand and to choose pictures and to choose them intelligently.

PICTURES RECEIVED.—From Mr. W. P. BUCHANAN (Buchanan, Bromley & Co.) we have a fine whole plate picture of a cat—"Grover Cleveland"—taken with fifteen grains of the new Violet Flash Light. We do not see how anything—any cat at least—could have been caught awake with any better success.—Mr. W. S. PERKINS, Colfax, Cal., has favored us with a 5 x 8 view of Donner Lake with its winter surroundings and "frozen over solid." It lies at an elevation of 7000 feet. In the view are snow sheds, a tunnel, telegraph lines, the old emigrant trail of the first settlers and the very spot where so many perished. It is a fine bit of photography.—Mr. C. L. JUDD, Jamestown, Dak., has sent us some spirited views of a revolving snow plow in operation.—Mr. A. A. BALDWIN, Ludlow, Vt., photographed the snow dropped down so quietly by the last "blizzard"—excellently.—Mr. WARDEN, 48 Winter St., Boston, Mass., is one of the progressive artists of the "Hub." Some of his cabinets before us give evidence of a careful and tasteful artist, and in technique they are unexcelled. With "old men" and young children he seems to be particularly successful.—Mr. W. I. DUNIHUE, Sinclairville, N. Y., represents the minstrelsy, this time, with two character pieces which are well done.—"Making Up," by Messrs. HERLOCKER & SCHAAD, Freeport, Ill., is a very cute little group of two tiny maidens "forgiving each other."

"SHINE" of the most brilliant quality can be imparted to prints on the Anthony's bromogelatine paper, by squeezeing them, wet, to a rubber cloth. When dried and separated, the effect of the gelatine enamel surface of the prints is very rich indeed.

WILSON'S *Quarter Century in Photography: Forming a Complete Text-book of the Art.* Price, \$4.00. By EDWARD L. WILSON. New York: Published by the Author, 853 Broadway, 1887.

We have here by far the most complete, handsome, and comprehensive handbook of photography that has been issued in the English language—a book which every photographer, whether professional or amateur, should make a point of adding to his library.

It is illustrated with about three hundred and fifty engravings, and as regards print, paper, and binding, deserves no less praise than on account of the usefulness of the matter.—Rev. Dr. Alfred A. Wright, Dean of the Chautauqua University, in the *Boston Academy*.

THE Second Annual Photo Conference of the London Camera Club, held March 13th and 14th, was a great success. Our esteemed correspondent, Mr. A. R. Dresser, gives us some welcome notes, received just as we go to press, which, with several of the papers read, we shall reproduce in our next number. The articles read "were all excellent and the whole affair was enjoyable and creditable."

MR. F. THORS, San Francisco, Cal., sends us some lovely cabinet and boudoir pictures which fully equal his splendid Chicago exhibit. There is a "touch of softness," so to speak, about Mr. Thors' work, which is all his own. One style made by him, is peculiarly pretty. A profile head, lighted *a la statue* with a black background of about three inch circle and the rest of the margin white. Some of Mr. Thors' theatrical characters are carefully managed.

A PHOTOGRAPHIC PARTY.—A social entertainment with an interesting accompaniment was given by Mrs. FITZGIBBON CLARK at her residence, 2334 Olive street, one evening last month, it being nothing less than the instantaneous photographing of groups of guests who were present. The photographs were taken by the flashing of powder magnesium. Among the parties present were G. Cramer and wife, Robert Benecke and wife, Mr. Bosch the photographer, and numerous others. Miss Minnie Russell assisted the hostess in entertaining. In addition to the social and photographic features, Mrs. Clark spread two spacious tables loaded with the choicest dainties of the season, which were amply appreciated by the visitors. It was a late hour when the guests departed, all being satisfied with what they had seen and enjoyed.

A STUDY of our new advertisements will repay any one.

*Photographic Mosaics* 1888. The pile is dwindling down. A few lots only left. The price—fifty cents for one hundred and forty-four pages—should cause every body to have it.

PHOTO-ENGRAVING, PHOTO-ETCHING, and PHOTO-LITHOGRAPHY. The long promised work on this subject we have in press, to be issued in a month. It is mainly upon an entirely new branch of our art, and will reveal, for the good of the whole fraternity, what has long been kept a secret from them.

We have purchased the complete instructions and formulæ of an expert in England (W. T. Wilkinson), newly written in the main, which, combined with our own contributions and translations from the French and German, will make the new work eminently thorough and practical.

There is already a demand for this kind of work, and we have had many inquiries for instructions.

Every photographer who wishes may now easily learn to supply plates for *newspaper and book illustration*, and the book will also show how to select and apply the requisites for production. A demand has surely come as the whole newspaper press uses photo-engravings.

The book will be of same sized pages as *Photographics and Quarter Century*; of the same general style, illustrated, and cloth bound.

See particulars in the advertisement, and a general review in our next number.

THE "BENEFIT" CLAUSE.—One of the members of the good old N. P. A. writes thus earnestly about the new feature:

There is an old adage, "Good things come slow." We were reminded of this when we saw that the Executive Committee of the P. A. of A. are now beginning to take in hand a plan for mutually benefiting the members of the Association. Fourteen or fifteen years ago the same subject was agitated, and I well remember hearing one of the active members of the old N. P. A. remark, "This organization was formed to help us in making pictures, and if they are going to get a lot of machinery connected with it, I'm out," and thus he and a few others feared they would get into deep water and drown, and opposed the movement to the best of their ability. The N. P. A. and some of the opposers have "gone to rest," and the "good" which might have come to the N. P. A. and kept it

still alive and active is very likely to be realized by the second edition of the Photographers' Association, the P. A. of A., if they go on with the movement. Gladly do we welcome this step, and earnestly do we desire that it will be carried out, and put into activity at our next Convention.

We think it should be so arranged that every photographer will see at once that it will be a good thing to be a member of the P. A. of A., and to keep the annual dues paid up, also to encourage others to join, and do likewise.

We prophesy great good will come to the Association, and also to each member if this idea is carried forward, and we shall surely give it our earnest support, and God speed, so far as we can.

MRS. E. N. LOCKWOOD.

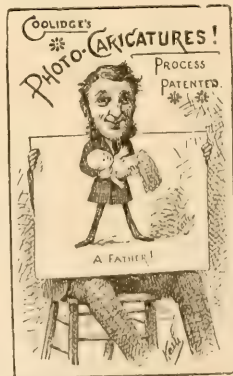
RIFON, WIS., March, 1888.

BURNET builds a new artist about every day now. This must be so, for we are sending out many copies per day, and surely they cannot all go to waste.

RAILROAD smash-up photographs, showing good work and a terrible massacre of rolling-stock, have been sent us by Mr. D. D. Upson, Hampton, Iowa.

A FRAUD—We understand a man is perambulating the South declaring that he accompanied the editor of this magazine to the Orient and made all his negatives. He is a fraud.

MR. C. M. COOLIDGE is the funniest man connected with our art, and has made the most people laugh. On a large cardboard he draws in black and white grotesque headless human figures in various attitudes with varied accessories and occupations, dwarfed size. This design the sitter holds under the chin and they are photographed together with effect similar to the little figure on our left. Sometimes the profit from one such design pays \$25. One man paid



Mr. Coolidge over \$300 royalties. See what he has to say in his advertisement.

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

**MAKE OUT YOUR OWN BILL**, and remit cash with your advertisements, or they will not be inserted.

**FOR SALE.**—Immediately, studio in a Massachusetts town of 5200 population, no competition, no club work. Cabinets, \$5.00, cards, \$3.00. Have city studio which requires my whole time. Price moderate, terms reasonable. Fullest particulars sent on application.

EDWARD S. HAZELTON,  
214½ Essex St., Salem, Mass.

**FOR SALE.**—A direct printing solar camera, 14 inch condenser and 25 x 30 box, at a bargain. Address

HARDY, Photo Artist,  
Boston, Mass.

A "LIFE-SIZE" lens wanted, one that will cut sharp and clear, a full life-size bust picture. A good instrument will be purchased or traded for other useful articles. Address

PACH BROS.,  
Broadway and 13th St.,  
New York City.

**WANTED.**—A first-class retoucher; none but the best need apply.

CAMPBELL & Co.,  
429 Broad St., Richmond, Va.

**FOR SALE.**—Several sets of apparatus and lenses suitable for amateurs.

Address "E."  
Office of PHILADELPHIA PHOTOGRAPHER.

**WANTED.**—A first-class rapid artist in crayon and ink, permanent. Address, stating salary expected and amount of work you can do, 409 E. Douglas, Room 1, Wichita, Kas.

I DESIRE to purchase at once a gallery in the neighborhood of New York. Address

JOHN W. R. DEERING,  
Lowell, Mass.

**MAGIC LANTERN.**—Any one wishing to dispose of a good oil lantern, address, stating price, condition, and maker,

J. HUNTER EWING,  
309 Walnut St., Philadelphia, Pa.

**FOR SALE.**—In a city, 30,000 population, A 1 photograph gallery. Cause for selling, bad health of owner, will be sold at a sacrifice.

A. M. TURNER,  
200 Main St., Norfolk, Va.

**GRAND OPPORTUNITY.**—A first-class photograph gallery to rent. An experienced and energetic artist sure of success. Best location in a live town of 8000 population. Address,

W. B. LATHROP,  
Seneca Falls, N. Y.

**To RENT.**—Photograph rooms, good North light, extra large operating room, fine printing house; in brick block on main street of village of 2500, on line of three railroads, big country trade, no opposition. Rooms have not been closed. Address,

GEO. CRADDOCK,  
Weedsport, Cayuga Co., N. Y.

**FOR SALE.**—A portable gallery doing a business of from three to four thousand dollars a year. Cabinets \$5.00 per dozen. Week ending March 3d, did \$144.50; week ending March 10th, \$89.00; have done \$1016.00 in two successive months, all cash trade. Eighteen miles from another gallery. Trade of twenty towns. Write for particulars.

PHOTOGRAPHER,  
Deep River, Conn.

**FOR SALE.**—A well equipped and only gallery in a growing town of 6000 inhabitants. No old traps, everything new. Good chance for young man with small capital. Address with stamp.

Box 244,  
Middletown, Pa.

**NEW SULPHITE OF SODA** (Crystallized).—Price: In 5 pound cans, \$1.00, 1 pound cans, 35 cents, ½ pound cans, 25 cents. For sale, wholesale and retail, by

GEORGE MURPHY,  
No. 2 Bond Street, New York.

Get Wilson's "Quarter Century in Photography," \$4.00.

## BUY BURNET.

WANTED.—Expert printer, salary \$18 per week. Send samples of work and reference.

F. A. RINEHART,  
1520 Douglas Ave., Omaha, Neb.

FOR SALE.—The PHILADELPHIA PHOTOGRAPHER as follows: Three separate volumes, 1867-68-69, bound in pebble cloth, leather, with gilt backs and corners, cost me eleven shillings per volume for binding, also one volume (twelve numbers) 1875, not bound, all the above in first-class condition. Reason for selling, poor health. Please tell me what you can give, and if you want them I will send them so you can see them before paying.

P. J. MATHEWSON,  
Bergen, N. J.

JUST OUT.—The Stoddard Print Roller, the best in the market. Price, \$1.00.

GEORGE MURPHY,  
No. 2 Bond St., New York City.

#### TALCOTT'S PATENT GLASS MOUNTS.

##### TESTIMONIALS.

EXETER, N. H., Feb. 9, 1888.

MR. E. K. TALCOTT, Boston, Mass.

I have been ordering your Patent Mounts from you almost weekly since September last, and in no case have they failed not only to satisfy but to highly please my customers. I think their neatness and utility cannot fail to win praise from the most critical.

Very truly yours,  
S. G. MORSE.

Mr. A. W. SHACKFRE, of Farmington, N. H., writes: I am very much pleased with your Glass Mounts. I think they are just splendid and will fill the bill every time.

NASHUA, N. H., March 13, 1888.

E. K. TALCOTT, Esq.

DEAR SIR: I desire to express my unqualified satisfaction with your very superior Patent Glass Mount. It almost invariably calls forth loud praises for its beauty, brilliancy, and novelty, from all whom I supply, and its undoubted durability makes it a valuable acquisition.

Yours respectfully,  
A. C. AUSTIN.

1886.—February wanted. Copies of the PHILADELPHIA PHOTOGRAPHER for 1886 wanted. A copy of 1886 *Mosaics* will be given for each such number sent to this office. EDWARD L. WILSON.

## BUY BURNET.

#### FOR SALE.

1 8 x 10 View Camera.....	\$5 00
1 5 x 8 Camera with Stereo Attachment	5 00
1 20 x 25 Glass Bath Holder, wood outside.....	15 00
1 Sleigh.....	4 00
1 Circular Rustic Tree Seat.....	4 00
1 Wall and Gate Posts.....	7 00
1 Background with Tree.....	6 00
1 8 x 9 Interior Background.....	10 00
1 Daisy Glass Foreground.....	6 00
1 9 x 10 New Landscape Background, Tree in the Middle.....	10 00
1 7 x 8 Background Skating Rink, new	6 00
1 4 x 5 Background.....	3 00
1 8 x 10 Background, Shore and Water View.....	10 00
Small Plain Grounds, each.....	1 00
8 x 10 Printing Frames, each.....	25
8 x 10 Old Portrait Negatives, not retouched, each.....	2
5 x 8 Old Portrait Negatives, not retouched, each.....	1
1 11 x 14 View Box, extra fine.....	50 00
View Lenses from \$3 00 each, upwards.	

PACH BROS.,  
841 Broadway, N. Y.

BACK NUMBERS OF THE PHILADELPHIA PHOTOGRAPHER FOR SALE.—I have the following copies for sale, some are very rare and hard to get.

1870—October, November, December.	
1871—May, December.	
1873—May, June, July, August, September, October.	
1874—January.	
1875—January, February, December.	
1877—February, September, October, November.	
1880—the entire year.	
1881—January, March, April, May, July, October, November, December.	
1882—All but September and November.	
1883—March.	
1884—January, April, May.	
<i>Mosaics</i> for 1880, 1883, and 1884.	
W. F. CORE, Lincoln, Ill.	

IMPERIAL Negative Reducer, for either dry or wet plates. Manufactured only by GEORGE MURPHY, Sole Proprietor, No. 2 Bond Street, New York. Price per pint bottle, 80 cents.

Get Wilson's "Quarter Century in Photography," \$4.00.

## TO PHOTOGRAPHERS.

We take pleasure in announcing that Mr. HENRY G. THOMPSON, formerly of the firm of Douglass & Thompson, and late Vice-President of the corporation of N. C. Thayer & Co., will assume charge of our Photographic Stock Department, at 208 State St., Chicago, after March 1st, where a full line of photographers specialties of every description will be kept on hand. At our Philadelphia branch the same assortment will be carried. Soliciting the continuance of your esteemed patronage, we are

THE BLAIR CAMERA CO.,

BOSTON . PHILADELPHIA . CHICAGO.

HANCE's Ground Glass Substitute makes a splendid backing for window transparencies and glass stereographs. It softens the light wherever used.

MALLIN'S FLYING SEA GULLS.—A beautiful 4 x 4 picture of over fifty sea gulls flying in the air and over the waves of the sea at Southport, England. Made by C. T. Mallin, Esq. A fresh invoice received. A splendid picture. Mounted 75 cents, unmounted 50 cents.

EDWARD L. WILSON,

853 Broadway, New York.

A RARE CHANCE.—Being desirous of going abroad, I wish to dispose of my gallery. It is one of the finest and best equipped in the Northwest. Centrally located, opposite the Post Office and the largest dry goods house, in fact, the best locality for doing a first-class local and transient business.

The studio is on two floors 20 x 80, has two skylights—top and side—fourteen feet square, facing north. About 35,000 negatives which yield quite a handsome revenue annually.

Will also dispose of my house, lot, barn, horse and carriage, etc., situated within twenty squares of the gallery in the best resident portion of the city. Population about 200,000.

Those meaning business will please direct for particulars

HARRY S. SUTTER,

Milwaukee, Wis.

It is a pleasure to know that all of the best photographers in the city of PHILADELPHIA are using Three Kings Albumen Paper. Price per dozen, 90 cents; per ream, \$32.00; second choice, per ream, \$24.00.

BUCHANAN, BROMLEY & Co., Importers,  
Philadelphia.

BUY BURNET.

OFFICE OF WILSON, HOOD & Co.,  
910 Arch Street,

PHILADELPHIA, March 1, 1888.

DEAR SIR: We beg leave to announce that we have formed a partnership with Mr. Joseph P. Cheyney, and that the style of our firm has been changed to Wilson-Hood-Cheyney Company, Limited.

We have, for the past twenty-three years, served you faithfully, and we now solicit a continuance of your patronage for our company, feeling sure that we can give you better service than ever before.

With our best wishes for your prosperity and asking yours, we remain

Very respectfully yours,

JOHN G. HOOD,

WM. D. H. WILSON.

PHOTOGRAPHERS doing business in Central New York have their attention called to the new Retouching Bureau recently opened in Utica. The gentlemen in charge are artists of ability who guarantee first-class work. Their prices are reasonable, and they respectfully invite photographers to write for particulars or send negatives for retouching. Coloring also done for the trade.

H. S. KELLER & C. C. JARVIS,

12 Tibbit's Block, Utica, N. Y.

VIOLET LIGHTNING FLASH.—(Brutum Fulmen.) This compound is made by a new formula, and produces the most powerful actinic light yet discovered. It contains neither acid, chlorate of potash, nor animal charcoal. It oxygenizes more rapidly than any flash compound heretofore offered, and may be used on card-board or glass with safety.

Twenty grains is quantum sufficit for an ordinary flash (instead of forty to sixty grains, as stated on our copyrighted directions). According to subject, distance, quality of lens and rapidity of plates used, vary the above quantity. A twenty-grain measuring-cup is sent with every bottle. Handle with care.

BUCHANAN, BROMLEY & Co.,

Manufacturers,

Philadelphia, Pa.

A RETOUCHER of long experience is prepared to work for the trade. Apply at 36 Bromfield St., room 40, over Codman's, Boston, Mass.

Get Wilson's "Quarter Century in Photography," \$4.00.

JUST RECEIVED FROM ENGLAND,

PROF. W. K. BURTON'S NEW BOOK,  
*Practical Guide to Photographic and Photo-  
mechanical Printing Processes.*

Price, \$1.00.

MARION & Co., Publishers, London.

The well-known author says, "The object of this work is to give practical instructions in the working of all processes which are in actual everyday use at this date."

The *Amateur Photographer* (London, Feb. 3d) says, "Any matter from the pen of Prof. W. K. Burton (of the Imperial University, Tokio, Japan) deserves and commands attention by all workers in photography. . . . We are sure it (this book) will be their constant reference-book."

Mr. Burton's capital papers in the *Photographic Times* have made him very popular in America, and his book will prove welcome to his many friends here. I have just received (too late for review) an edition for this market. Copies mailed on receipt of price.

EDWARD L. WILSON,

853 Broadway, New York.

## BUY BURNET.

OFFICE OF J. P. CHEYNEY,  
636 Arch Street,

PHILADELPHIA, March 1, 1888.

DEAR SIR: Having, with Messrs. Wilson, Hood & Co. decided to consolidate our businesses, and believing that by such consolidation we can still better serve our patrons, assuring you that you will meet with as cordial treatment and determined effort to merit your favor in the future as in the past, I do most earnestly solicit your continued patronage for the new firm of Wilson-Hood-Cheyney Company, Limited, 910 Arch Street, Philadelphia.

Respectfully yours,

J. P. CHEYNEY.

SAMUEL G. NIXON,

Portrait Artist,

813 Arch St., Philadelphia, Pa.

Established December, 1878.

Photographic Enlargements supplied and finished in Ink, Crayon, and Water Colors. Terms on application.

TO PHOTOGRAPHERS.

N. B.—If a picture furnished by me is not satisfactory to your patrons, send it back and I will endeavor to correct it without extra charge.

S. G. NIXON.

BROWN & GOLDSMITH'S

SUCCESS

## SENSITIZED PAPER PRESERVATIVE.

A Great Boon to Photographers.

PATENT APPLIED FOR.

—SIMPLE, RELIABLE, CHEAP.—



No more anxiety in regard to the weather or in keeping your paper until the sun shines, or until it can be used. It will save the average photographer five times what it costs to use it, saying nothing of the convenience of having sensitized paper always ready for use.

It is as valuable in Winter as in Summer, and will pay for itself five times over in the saving of time, labor, and gold, as where paper is kept two or three days it tones much easier than without it, and requires less gold.

Price, \$2.00 per Package.

USE ONLY

TIN CYLINDER CANS.

This cut illustrates the apparatus that will do the work successfully.

For sale by all Photographic Stockdealers.

GOLDSMITH & MOFFITT,

Sole Manufacturers,

374 Main St., Springfield, Mass., U. S. A.

ADT'S PATENT PRINTING FRAME.—The printing frame of the future. Considering the construction of the Back-board, the Patent Tally, and the Elastic Felt Pad, the Adt Patent Printing Frame is the cheapest and best in the market.

### PRICES.

3½ x 4½	.	.	\$0.50	6½ x 8½	.	.	\$0.75
4 x 5	.	.	50	8 x 10	.	.	85
4½ x 5½	.	.	50	10 x 12	.	.	1.15
4½ x 6½	.	.	60	11 x 14	.	.	2.15
5 x 7	.	.	65	13 x 16	.	.	2.40
5 x 8	.	.	65	14 x 17	.	.	2.80

When made with backs to open lengthways, an additional charge of ten per cent. will be added to the foregoing prices.

Now in stock.

GEORGE MURPHY,

2 Bond St., New York.

EVERY gallery should have a Studio Register. It is complete, economical, and altogether practical. Send for a sample leaf and price-list to the Sole Agents, Smith & Pattison, Chicago.

ART OF MAKING PORTRAITS IN CRAYON  
ON SOLAR ENLARGEMENTS.

SECOND EDITION.—NOW READY.

The *Photo Times* says: "The second edition, rewritten and enlarged, of this popular handbook for crayon artists, has recently been issued. The first edition of this book being small and published rather as an experiment, many important points on the subject had to be treated briefly. But that edition meeting with such a warm reception and selling so rapidly, the author resolved to enlarge the second edition and give his readers the benefit of the knowledge which he had since gained of new materials and a fuller description of his methods of handling them. The little work treats solely of bust and vignette portraits, and its aim is to assist young artists who are struggling alone beyond the reach of competent teachers. After an introductory confidential chat with the students, we have chapters on the Solar Print, Crayon Materials and How to Prepare them; the Crayon Print, Interlining and Retouching; Hair and Beard; Drapery; Background; and Concluding Remarks."

Price, in paper cover, fifty cents.

For sale by EDWARD L. WILSON,

853 Broadway, New York.

To PHOTOGRAPHERS.—Now in stock, the new quick Seed plates, sensitometer numbers 24, 25, 26, and 27. Quickest plate and finest printers.

GEORGE MURPHY,

2 Bond St., New York City.

WANTED.—The live photographer everywhere, to issue special-rate photo. checks in combination with our glass tablet photo mounts. Is new; takes at once.

We mount cabinet size prints for photographers for \$1.00 each, transportation paid by us. E. K. TALCOTT, 216 Northampton Street, Boston, Mass.

THE PLATINOTYPE for Amateurs; simple to work, and the results artistic and beautiful. Send ten cents for sample landscape and book of instructions.

WILLIS & CLEMENTS,

1112 Hunter St., Philadelphia.

To FERROTYPES.—The Eagle Ferrotypes Collodion. Use it for fine effects.

GEORGE MURPHY,

2 Bond St., New York City.

— EUREKA! —

(BARGAIN LIST.)

1 25 inch Entreklin Burnisher . . .	\$45.00
3 Bergner Stereo Cutters, each . . .	15.00
1 Darlot $\frac{1}{2}$ size Portrait Lens, Rack, and Pinion Central Stops . . . . .	14.00
1 $\frac{1}{2}$ size Lantern Objective, no name, good condition . . . . .	5.00
1 No. 2 Euryscope Lens . . . . .	40.00
1 Pair (matched) No. 0 Euryscope Stereo Lenses . . . . .	40.00
1 18 x 24 Common-sense Tray, good as new . . . . .	3.75
1 Marion Hard Rubber Adaptable Drop Shutter, cost \$10.00 . . . . .	5.00
1 No. 2 Darlot Rapid Hemispherical . . . . .	20.00
1 E. A. Single Combination Lens, Rack and Pinion Movement . . . . .	5.50
1 Ross $\frac{1}{2}$ size Portrait Lens, Rack and Pinion, Central Stops . . . . .	30.00

The above bargains are offered for sale for cash and are all guaranteed to be in good working condition or no sale. ROBERTS & FELLOWS, 1125 Chestnut St., Philadelphia, Pa.

THE PLATINOTYPE for Photographers, Solar Printers, and all Copyists. Platinotypes are permanent, and a license to work the process costs very little. Send ten cents for sample portrait and book of instructions.

WILLIS & CLEMENTS,

1112 Hunter St., Philadelphia, Pa.



VIEWS

reproduced in this popular form, at lowest prices, from prints or negatives.

A. Wittemann,

60 Reade St., N. Y.

PHOTOGRAPHIC MASKS.

The Rockwood Triplex Portrait Mask. One Dozen mailed on receipt of 50 cents. Also, manufacturer of all kinds of picture mats.

H. STENGEL,

710 Broadway, N. Y.

THE best Position Chair ever introduced is the Celebrated "Queen Poser," manufactured and patented by Smith & Pattison, Chicago. Hundreds have been sold. Send for descriptive circular and price list.

Get Wilson's "Quarter Century in Photography," \$4.00.

BUY BURNET.

WILSON'S *Quarter Century in Photography*; a collection of hints on practical photography, which form a complete text book of the art. By Edward L. Wilson, editor of the PHILADELPHIA PHOTOGRAPHER, and author of Wilson's *Photographics* and *Photographic Mosaics*, published by the author, 853 Broadway, New York.

Mr. Wilson's long experience in the art of which he writes, and his special training as an editor of the leading American magazine devoted to photography, give him special fitness for the preparation of a text book of this kind. A quarter century ago Mr. Wilson entered the business as an employé of Mr. F. Gutekunst, of this city, and a year afterward began the publication of the PHILADELPHIA PHOTOGRAPHER. He has apparently thought of nothing else but photography during the last quarter century, and in this book condenses and puts in good shape all that he has learned on that subject from his own experiments, experience, and study and from the contributions of the most eminent photographers of the world to his magazine. It may be said, without exaggeration, that the resultant book is a library in itself, sufficient to the needs of most photographers. Mr. Wilson is a practical man, and, though he treats the subject in a systematic way, does not overburden it with details that, however interesting to the chemist, are simply confusing to the working photographer. The book is full of useful hints and profusely annotated from the works of other authors. It is also liberally illustrated, and may safely be commended as the best single book for either the amateur or professional photographer that has yet appeared.—*Philadelphia Ledger*.

#### TO PHOTOGRAPHIC MERCHANTS.

NEW YORK, September 1, 1887.

GENTLEMEN: We have now opened a *New York Depot* for the benefit of our Eastern patrons. From this depot orders will be delivered to any New York Freight, Express, or Steamboat office. Address M. A. SEED DRY PLATE Co., No. 2 Bond St., New York. A. R. HUISKAMP, Manager.

FOR SALE.—A 4 x 5 Blair camera and tripod with six double holders and twelve Eastman film carriers. Also a Gundlach lens. All in excellent order and sold in order to advance to greater heights. F. H. W.,

Care of Edward L. Wilson, 853 Broadway, New York.

## BUY BURNET.

## SITUATIONS WANTED.

*No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.*

By a young man, A 1 retoucher and good general workman. Have had some experience in operating. Address Photographer, Box 277, Norwalk, Ohio.

By a hustler from the word go, with practical experience. Please state terms and address A. D. D., 949 Virginia Avenue, S. W., Washington, D. C.

By a young man, eighteen years old, as general photographer, can assist at operating, no objection to going west. George Renke, 205 E. 63d St., New York.

As operator and printer or general workman, can retouch some. References furnished if desired. L. H. W., Box 213, Ontario, N. Y.

By a first-class operator, is also a practical retoucher, understands bromides, etc., samples and references given. Salary \$25. W. Jerom, 225 Erie St., Cleveland, O.

In a good gallery, by a young man competent to take full charge, as operator or general workman. Samples and references. Address Photographer, Box 55, Hammononton, N. J.

Owing to change in ownership of gallery, a competent operator of over seven years experience will be open to an engagement April 1st. Strictly temperate. Permanent position desired. Address Operator, Box 707, Hartford, Conn.

By a practical photographer of fourteen years experience, as operator, or printer and toner. First-class references, can take full charge of a gallery, speaks four languages. E. H., Box 837, Springfield, Mass.

By a strictly temperate young man in a good gallery, or could take charge of gallery. Steady employment required. Address, stating salary, A. E. McDiarmid, Box 186, Brandon, Manitoba.

As retoucher or general assistant, will send photographs I have made, or retouch a negative for a sample of my work. G. H. Abbott, Omro, Wisconsin.

A young man having had nearly two years experience, mostly at printing, desires a position in a good gallery, with chance to improve in all branches, references furnished. F. H. Richardson, Hackettstown, N. J.

As a general workman with a good photographer, by a young man with experience. W. C. K., Box 224, Orange, Mass.

By a photographic printer and finisher, a young man willing to work, and well recommended. Address, Box 182, Marysville, Ohio.

As printer and toner; understand something about dark-room work. E. G. Engels, 162 Dean Street, Brooklyn, N. Y.

Can confidently recommend to any photographer a young man, as printer or general assistant, terms moderate. Address, Box 437, Marysville, Ohio.

## FRENCH PHOTOGRAPH ENAMELLING.

LEON FAVRE, of Paris.

HAVING met with great encouragement from all first class galleries in New York, I have opened a branch house for the specialty of enamelling Photographs of all sizes.

## PRICE LIST.

Imperials, \$1.00 per dozen, or . . \$0 15 each.	Boudoirs or Panels, 10 x 12, . . \$0 70 each
Boudoirs or Panels, 5 x 7, . . 30 "	" " 12 x 14, . . 1 00 "
" " 6 x 8, . . 40 "	" " 14 x 16, . . 1 25 "
" " 8 x 10, . . 50 "	" " 16 x 18, . . 1 50 "

Orders executed in 24 hours.

Postage not included.

LEON FAVRE, 236 West 44th St., N. Y.

NOTICE.—Photographs to be enamelled must be sent unmounted, Mounts apart.

# GRAY'S PERISCOPE

Is the Cheapest and Best View Lens in the world. Write for particulars.

R. D. GRAY, Manufacturer,

259 W. 27th Street, New York.



## C. H. CODMAN &amp; CO.

## Photographic Stockdealers

Sole Agents for the NEW ORTHO-PANACTINIC LENS, Moor's Photographic Enamel, the Perfect Mounting Solution for mounting Photographs on the thinnest mount without wrinkling.

New England Agents for American Optical Co.'s Apparatus. The best in the world. Send for Price List.

34 Bromfield Street.

BOSTON, MASS.

The Photo-Gravure Company  
No 853 Broadway New York

**FIRE!**

WORKS:

3d Avenue and 10th Street  
Brooklyn.

Mar. 22, 1888.

A serious fire occurred in our factory on Tuesday night, but we have

already made arrangements by which our business will suffer no interruption in any department. Thanking you for past patronage, and trusting to receive your orders, we are, yours truly,

THE PHOTO-GRAVURE CO.

**BUY THE BEST!**

No other will give you half so much satisfaction.

FOR DRY PLATES

ANTHONY'S Patent Perfect PLATE HOLDERS  
ARE SUPERIOR TO ALL.

**DALLMEYER LENSES,**

**SUCCESS CAMERAS,**

**THE FAIRY CAMERAS,**

**THE NOVEL CAMERAS,**

**SCHMID'S DETECTIVE CAMERA**

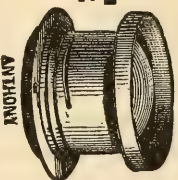
SEND  
FOR OUR  
CATALOGUE,  
AND GET  
THE BEST  
OF Everything.

**APPARATUS OF ALL KINDS.**  
Chairs,  
Neg. Boxes,  
Camera Stands,  
Printing Frames,  
Etc., Etc.

**DALLMEYER**

**FOR WET**

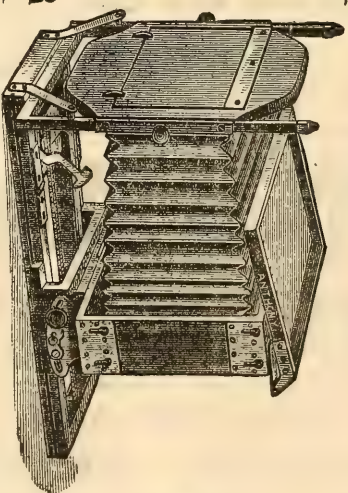
**OR DRY**



**WIDE-ANGLE RECTILINEAR**

E. A.

SINGLE COMBINATION, RAPID,  
WIDE ANGLE, PLATYSCOPE,  
PORTRAIT AND VIEW LENSES.



**THE FAIRY CAMERA.**

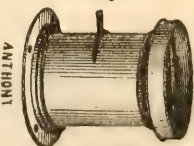
*The Lightest and Best for Out-door Work.*

FOR EITHER DRY OR WET PLATES  
NOTHING EQUALS  
THE BENSTER PLATE HOLDER.

**DALLMEYER**

**NOTHING**

**COMPARES**



**RAPID RECTILINEAR**

O. I. C.

PORTRAIT, COPYING, CLIMAX  
PORTRAIT, GEM, AND  
COMPACT VIEW CAMERAS.

**E. & H. T. ANTHONY & CO. BROADWAY, NEW YORK.**

--591--

# THE CRAMER PLATES

UNEQUALLED

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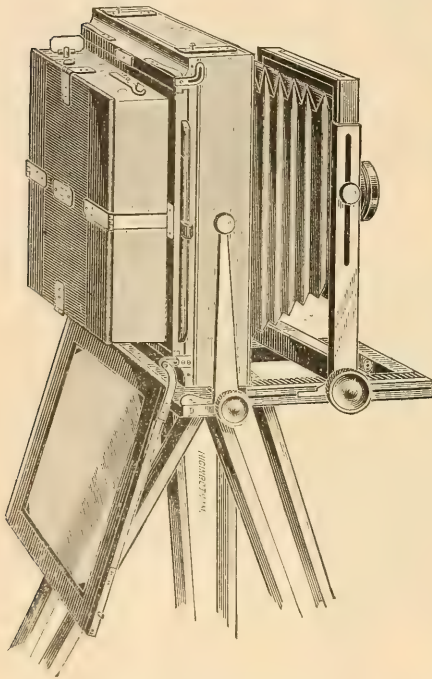
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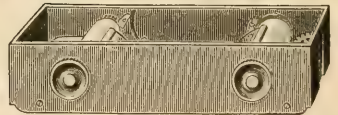
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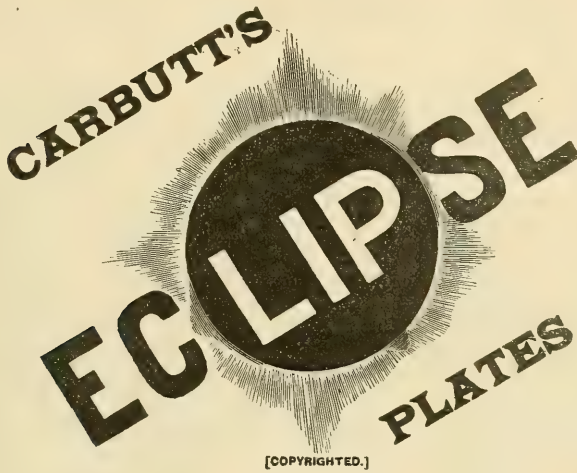
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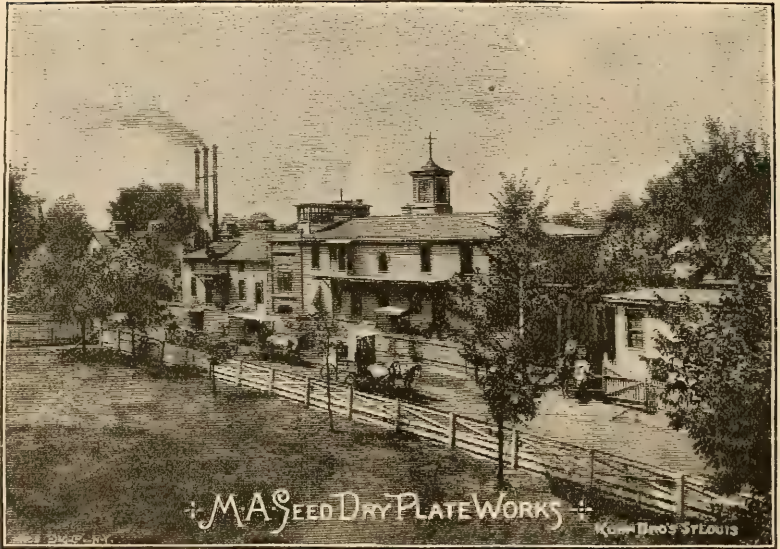
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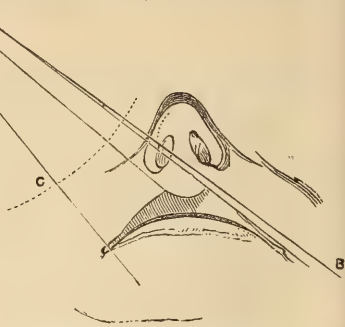
208 West Fourth Street

Cincinnati, Jan 17<sup>th</sup> 1888

My dear Dr Wilson

The Burnet came to hand last week. It is full of information & instruction. I value it very highly - I have the first edition you published in 1875. It has been my guide. But your new work is three books in one. I am certain no one can read it without being artistically benefited.

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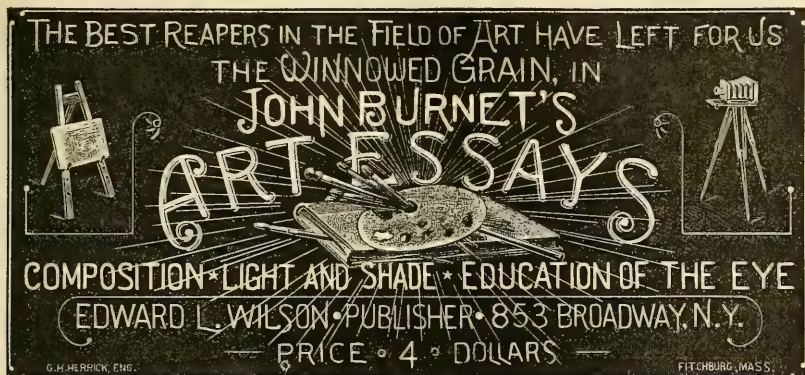
MY DEAR SIR: *Mosaics* and the two numbers of the *Philadelphia Photographer* (for which my best thanks) came duly to hand, together with *Burnet* in his modern garb.

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(See next page.)



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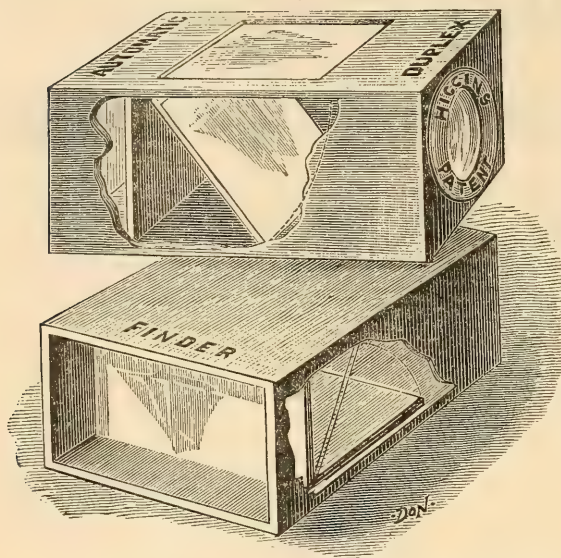
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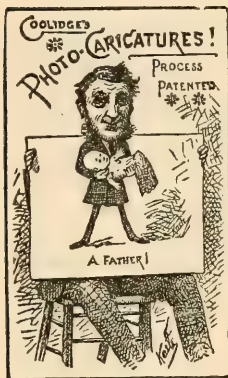
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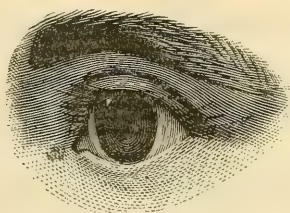
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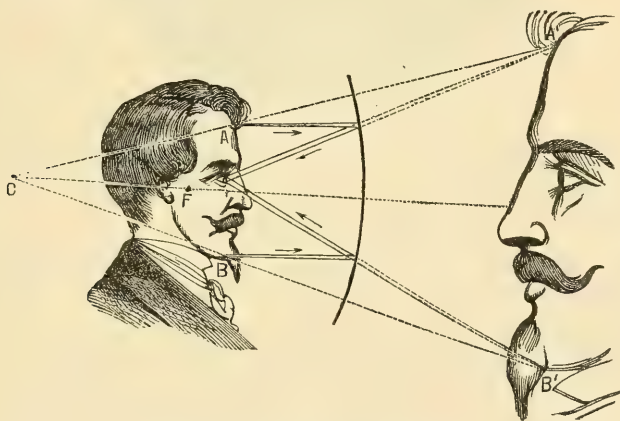
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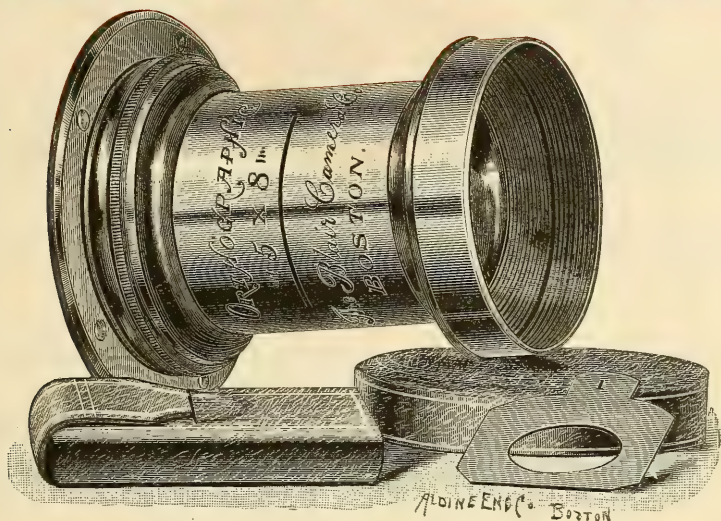


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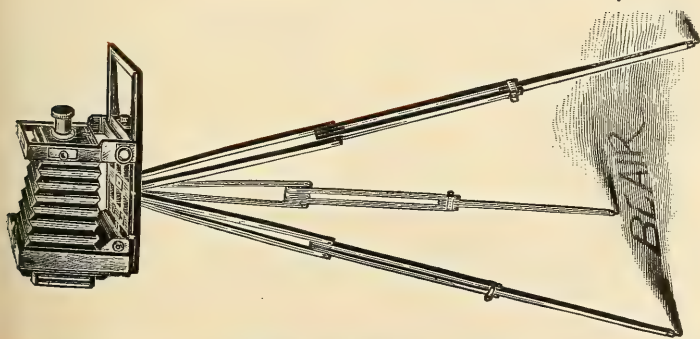
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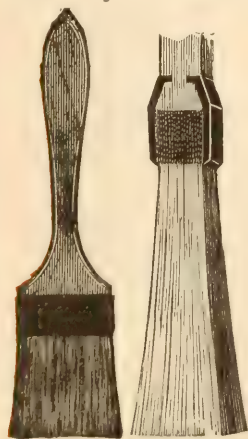
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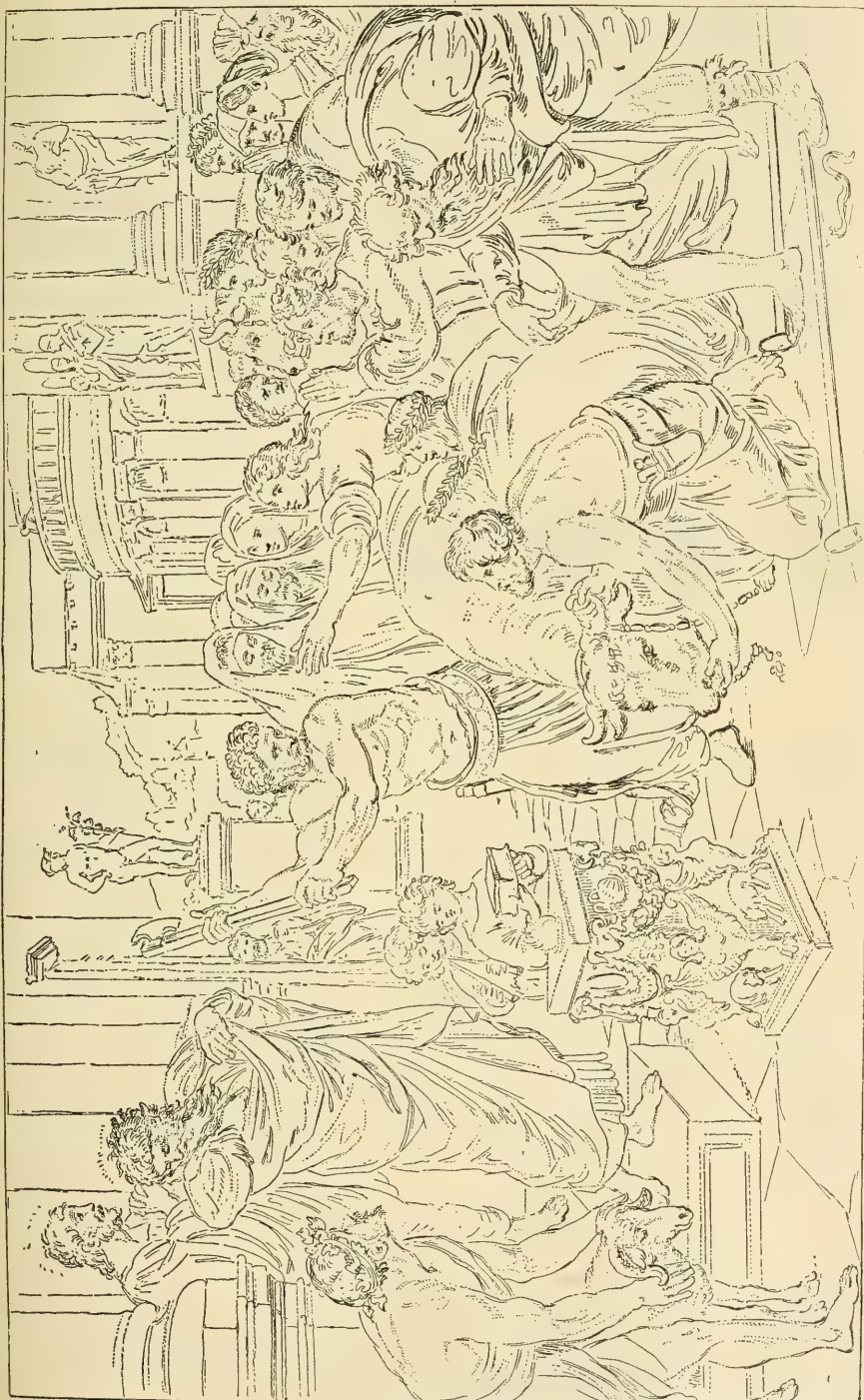
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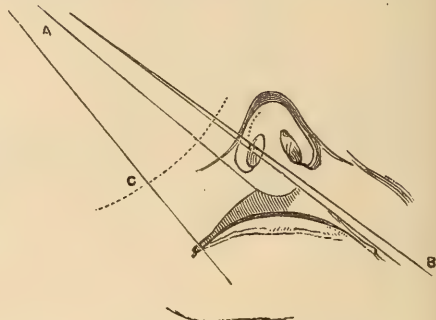
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My dear Dr. Wilson

The Burnet came to hand last week. It is full of information & instruction. I value it very highly — I have the first edition you published in 1875. It has been my guide. But your new work is three books in one. I am certain no one can read it without being artistically benefitted.

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This book, too, ought to be a godsend to those butterflies of society who go to the Academy and other picture galleries, because it is the correct thing to do. They, as a rule, know nothing of art, but they talk about it as if they did, and Burnet would assist them to a few fresh ideas.—*The London Camera*

WHILE all parts are of great value to the student, we think the part on "Education of the Eye" will be found of most practical value to the photographer, as that organ is very deficient, and much in need of education.

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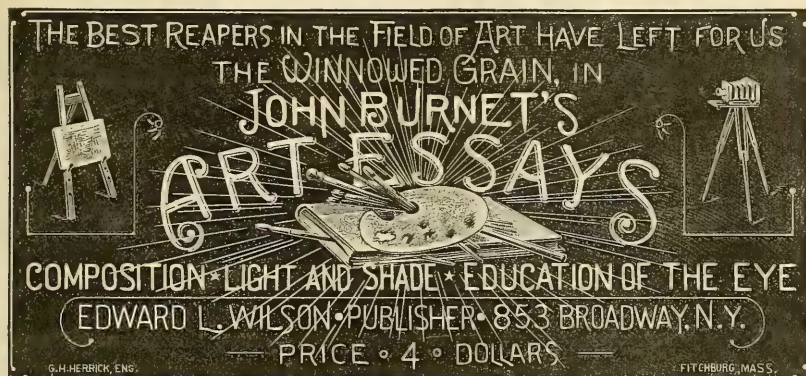
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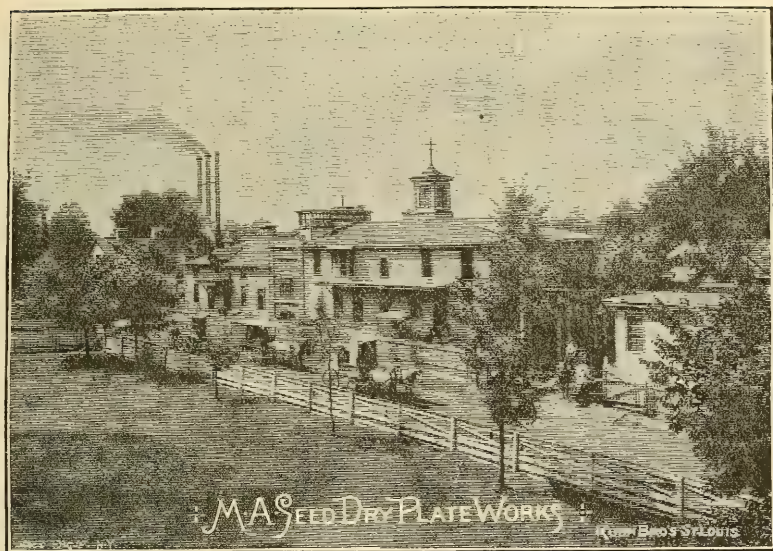
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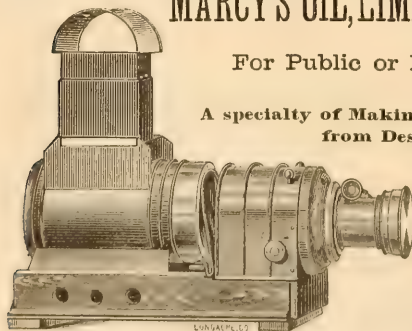
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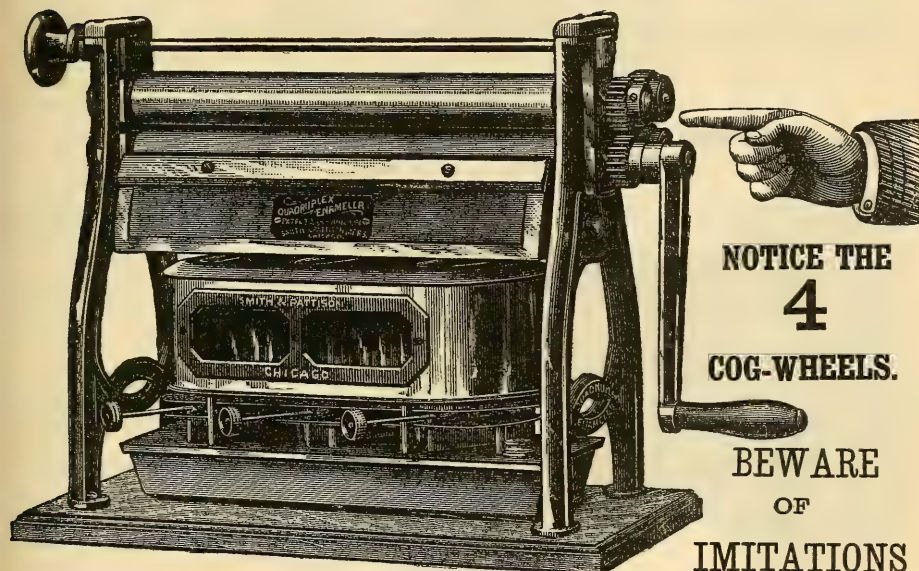
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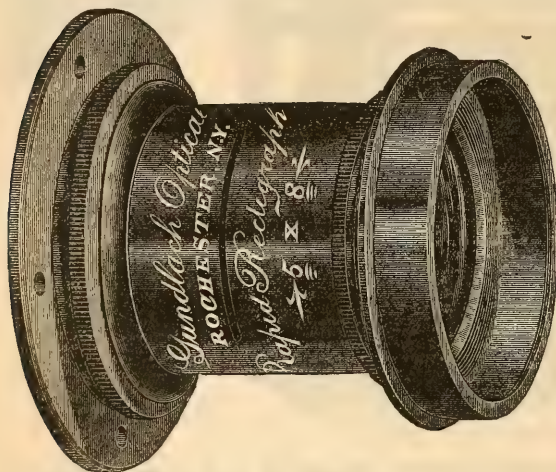
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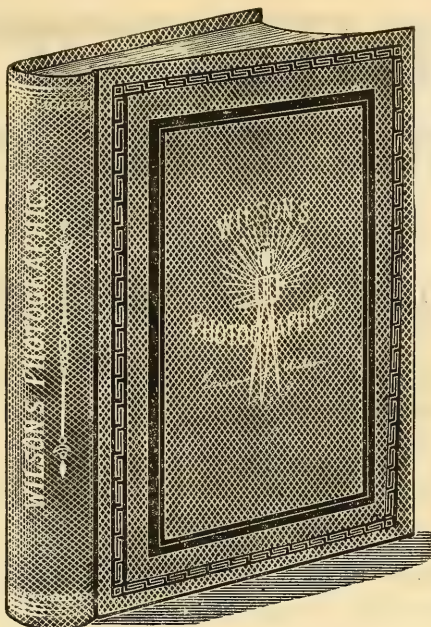
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4 1/4 x 5 1/2 .....	40
4 1/4 x 6 1/2 .....	44
4 3/4 x 6 1/2 .....	48
5 x 7 .....	52
5 x 7 1/2 .....	56
5 x 8 .....	60
6 1/2 x 8 1/2 .....	88
8 x 10 .....	1 20
10 x 12 .....	1 80
10 x 14 .....	2 12

SIZE.	PER DOZ.
11 x 14 .....	\$2 40
12 x 15 .....	2 68
14 x 17 .....	3 60
16 x 20 .....	4 80
17 x 20 .....	5 12
18 x 22 .....	6 00
20 x 24 .....	7 20
22 x 27 .....	9 00
25 x 30 .....	11 20
24 x 36 .....	12 80
30 x 40 .....	18 00

OTHER SIZES IN PROPORTION.

Less than one dozen of sizes above 8 x 10 only will be packed at an extra charge of 25 cents.

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OF NOT LESS THAN TEN YARDS.

	PER YARD.
10 inches wide .....	\$0 45
11 " .....	50
12 " .....	55
14 " .....	64
16 " .....	72
18 " .....	80

	PER YARD.
20 inches wide .....	\$0 90
22 " .....	1 09
24 " .....	1 08
25 " .....	1 12
30 " .....	1 35
31 " .....	1 40

## EXTRA LARGE SIZES.

	PER YARD.
33 inches wide .....	\$1 48
35 " .....	1 75

	PER YARD
37 inches wide .....	\$1 67
41 " .....	1 84

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The grades are H. G., heavy grained; H. S., heavy smooth; L. S., light smooth, all at one price.

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U. S. A.





## M O S C O W.

Enlarged from part of a 3" square negative made 28 years ago by  
Prof. C. Piazzi Smyth, Astronomer Royal of Scotland.

THE  
**Philadelphia Photographer.**

EDITED BY EDWARD L. WILSON.

Vol. XXV.

APRIL 21, 1888.

No. 320.

**OUR PICTURE.**

THE picture which graces our current issue, is, in more senses than one, a curiosity. The negative from which it was enlarged was made several years before the PHILADELPHIA PHOTOGRAPHER was born! We doubt if modern photography could reproduce the same subject with more rich and delicate variety and contrast of light and shade. In that sense it is a marvel of beauty. But it holds even greater interest. It was made by a young amateur photographer who has since become one of the most distinguished scientists of our world, and we are not very certain but what he is well known in many other planets too, since he has had much to do with them. The view is of a portion of the city of Moscow and was taken by Prof. C. Piazzzi Smyth, Astronomer Royal of Scotland, and author of the most useful works we have on *Life and Work at the Great Pyramid of Gizeh*.

The story of the taking of this view was given by Prof. Smyth in the 1888 issue of the *British Journal Almanac* and is reprinted on page 226. Glass transparencies of several of the pictures alluded to were sent us by Prof. Smyth through the courteous care of the Smithsonian Institution at Washington. From one of these Mr. F. Gutekunst has made us the fine phototype prints which serve as "Our Picture." Still another interest is held by this remarkable view. We allude to its æsthetic qualities: first the wonderful rendering of light

values whereby one can readily detect which of the metal-covered domes is with silver and which of gold, and second, as to the choice and composition. This last is explained in some extracts from a kind letter which acknowledged a proof we sent him from his transparency.

In alluding to some of our own feeble efforts, Prof. Smyth says:

"You have been doing a far higher work in bringing out an American edition of Burnet's, *Essays on Art*, from the high motive which prompted you therein, viz., to benefit all your countrymen in some of their higher aspirations; for buyers of pictures, as well as painters and photographers of them, in fact, all the three classes into which human beings may be divided, are capable of being improved, educated, elevated and made happy by understanding the immortal principles of art as Burnet held forth upon them. It was certainly a master-stroke of yours to think of bringing out that book in the New World with all its suggestive sketches, copied by photography to perfection and exact similitude. And what an excellent little thing, though I say it, you have made out of the Moscow view; it is quite an example of a plate for a traveller's book, exceedingly effective, and Moscow all over; and then to think what a very small part of the original 3-inch negative your present plate did form, just an end of a white line passing through the middle of the plate and all between it and the bottom, black, featureless cabbage gardens. But then I had studied Burnet's

art essays for years before, and had set up for myself in camera photograph copying the principle of copying and magnifying. The poor camera, if it is set up, as it should always be, straight and square, must always copy a great deal that is not wanted in a picture. So then, when the negatives from nature were developed I set to work to consider and find out by means of a microscope of variable field and variable powers what portion, no matter how small, of the whole camera negative, would correspond most nearly to Burnet's ideas of composition, and fulfil the glorification of something that appeared to me at the time the most important object or purpose in the scene."

We are very sure that when we first issued the PHILADELPHIA PHOTOGRAPHER no such picture as this was obtainable and there was no known method by which the negative could be reproduced and enlarged nor one by which such lovely prints could be made. At the time it was made we presume Prof. Smyth confined his printing to glass and to matt surface paper. It seems almost as marvellous—this uniting of the past with the present—as looking upon the photograph of the Pharaoh of the Exodus. A longer focus of time, that is all the difference.

### GLASS PHOTOGRAPHS VERSUS TIME.

BY C. PIAZZI SMYTH,  
Astronomer Royal to Scotland.

"VERSUS Effects with Time," might perhaps have been a better title, for, though the old Roman denounced "*Tempus edax rerum*" ("Time the devourer of all things"), time itself is surely innocent enough; for what is it but a quiet, unostentatious, yet sublime unrolling of the material of eternity, each part of it in succession inevitably here to-day and as necessarily gone to-morrow, and how or where who can tell? But what other things, and often very mischievous little matters too, may not have been at work on our art treasures during any given interval! "Ay, there's the rub!" for if said art treasures be positive photographs on glass—transparencies, as I believe they are called in one word—then,

though they be beyond expression beautiful when gazed at by transmitted light, and though they be coated with polished plate glass on either side, and seem, when at their best, like reproductions in miniature of nature herself in some adamant material that gives them promise of lasting for ever, yet are they, alas! only too amenable to a variety of injuries, diseases, and decays, arising often from very small causes indeed, and some of them certainly preventable.

Now within the last few days I had occasion to overhaul something like a score of well-filled grooved boxes containing exactly such glass positive photographs. They had been prepared from negatives made twenty-nine and thirty-one years ago, had been abundantly exhibited to both friends and the public by stereoscope and oxyhydrogen lantern during the first twelve years of their existence, but during the last seventeen had been simply stored away in book-cases, where they had been thought of no more than if they had been old ponderous tomes in a hereditary family library, growing older and browner year by year.

The photographic method of most of these pictures was wet collodion, varnished when dry, and then covered by a clean glass plate with an edging of gummed paper all round to hold the glasses together and keep the dust out. They had all been taken from the negatives, not by superposition, but by a copying camera, first of the same size as the negatives, while afterward artistical bits were selected and magnified, according to their sizes, variously from two to seventeen times linear, so as to illustrate special detail such as only a photograph can worthily give. And although the size of plate for almost all these magnifications was the 6.75 inches long by 3.25 inches high of the orthodox stereograph, yet there were examples of magnifying on larger plates, up to 8 x 10, while various methods of moist collodion, dry collodion, simple albumen, and collodio-albumen, had their representatives amongst the collection.

Who but one who has worked long upon glass and secured, both in his negatives and all the magnified positive copies he has made from them, more or less of the microscopically fine definition and exquisite shad-

ing which photography on glass is capable of, knows the ineffable pleasure of looking over his own transparencies of important occasions in life some thirty years ago? How instantly and sweetly is memory revived! We stand again amid the scenes of our youth; and to me, after having well dusted and cleaned the old stained and battered boxes, shut out side light, and arranged a table at a convenient height before a window looking to the sky, what a full three hours of enjoyment and instruction too, did there not come as I drew up out of its grooves and poised one plate after another between my eyes and the light, renewing acquaintance thereby with the realities of place and time now long passed away.

I could hardly decide which to admire most, diverse as they were, either the instantaneous views taken with wide aperture or the infinities of refinement secured with very small stops and long exposures. There, however, looking perfectly life-like and wanting no color to speak to its nature and truth, was the surf of the ocean breaking with long white surges on the rocky shore of Teneriffe; how often, too, have they not similarly broken there since then, unseen by me and unpictured by any one! And there also, in the mimic world on glass, stood the great central cone of the volcano, seamed down its sides with a thousand streams of black lava, the last one even ages upon ages old. There, too, on another series of the plates, were the great government offices of St. Petersburg; and there also the gold and silver domes and glittering crosses of the cathedrals of Moscow and the Tartaresque towers of the Kremlin.\* There, also—but I beg the reader's pardon for going on so far and so long in this style, for it was not to describe the inherent beauties of any transparencies that I sat myself down to write on this occasion, but rather to tell him plainly and practically of any anything that I might possibly have found during the examination of so many and so old glass photographs marring their beauty, impeding their usefulness, and threatening to curtail their existence among men.

Now, in this point of view, the evil which caused me the worst twinges of conscience was that in certain of the subjects a sickly, brown, opaque hue had grown over nearly half the plate. This, too, was easily traced up to their having been fixed with *cyanide of potassium*, so strongly recommended at the time because "so clean, so quick, and requiring so little washing;" yet this has been the result. Earlier pictures, fixed by hyposulphite of soda were as transparent as on the day of their birth, or, rather, their washing. An eminent *savant* in America, the journals say, has recently been holding forth at the Photographic Convention of Chicago on his "Search for a Substitute for Hyposulphite of Soda," but quite needlessly where *glass* pictures are concerned. Wherefore let us rather rest and be thankful for the potent salt which Sir John Herschel discovered when the nineteenth century was young, and held ready at hand to bring out as a *complete* solvent of chloride, iodide, and bromide of silver, the moment that photography should be invented; and he did bring it out accordingly in 1838.

Again, not a few of the transparencies required to have misty spots of moisture and dust rubbed off the outsides of the glasses, but a vastly greater number had to be cut open to allow of the far more abundant moisture *inside* or *between* the two glasses, being rubbed off. How it got in there, and why, was a puzzle; but, fortunately, its predilection was always for the plain glass, not the pictured surface. On the said plain glass inside surface the depositions were at first in microscopic globules, but as the disease progressed the globules became drops of water of such a size that they were forced into mechanical contact with the pictured film, and after keeping that sodden for perhaps several years, the varnished collodion had given way in the shape of long sinuous cracks extending all over the surface, though albumen and even collodio-albumen had successfully resisted.

But what strange surprises do not take place in the world even still! For actually after this paper had been begun, there have just been returned to me from India two boxes of stereo-sized transparencies of the Great Pyramid, which I had made over to

\* See Our Picture—Ed. P. P.

a friend no less than nineteen years ago in order that he might exhibit them in Bengal by oxyhydrogen light, discourse for a season or two on the sacred and scientific theory of that wondrous monument, and then hand them on to an educated Christain Hindoo for further exhibitions; so that I had long since given up all idea of ever seeing them again. Yet here they have arrived at the very point of opportunity to assist in settling the question of time, or effects *with* time, *versus* glass photography.

It will probably be allowed that the distances they have travelled, and the time they have been knocking about the world, makes their testimony valuable; and when I further state that the material of all the pictures was wet collodion varnished, and that every one of them was found on opening the boxes perfect, with no discoloration and no moisture, the question may be asked, How that came about?

First of all, then, I would answer that they were all fixed with hyposulphite of soda; and, second, they had no covering glasses. So dextrously, too, had they in that naked sort of condition been passed through the lantern, that only one of the pictures had received a visible scratch. Further, they were fitted in grooves endways in the boxes, which were of plain deal without any *glued on* cloth, and the glasses were consequently standing with their longer edges on soft wood, while the lid came down on their tops without leaving any sensible shake. Perhaps, too, I should add, that at the time of taking these transparencies from the original negatives I had begun to be suspicious of all plates of very *white* glass being more or less hygroscopic, and, therefore, chose greenish glass as being both harder and remaining for a longer time in damp situations without becoming misty from moisture.

And how glad I should be if all our opticians were equally on the watch to detect hygroscopic tendencies in the glass they employ for lenses! I have a large portrait combination of admirable mechanical and optical construction, giving a flat field with full aperture and faultless definition, but with such a tendency to attract moisture, to its *inside* surfaces chiefly, as to require to be

opened and cleaned out every few days, or nothing in the way of instantaneous photography could be performed with it. This is an evil, too, under the sun, rather increasing than diminishing with the new kinds of very refractive glass now being made, and is usually very difficult to detect in an instant if the glass has just been cleaned.—*British Journal Almanac.*

### A SUCCESSFUL LIFE.

IN the March issue of the *Woman's Magazine*,\* the leading paper, with the above caption, gives very interesting details of the life of Mrs. Mary A. Moss, wife of J. C.



Mrs. Mary A. Moss.

Moss, Esq., President of the Moss Engraving Company, of this city. The writer, Mrs. Esther T. Housh, acting upon the theory that "man and wife are one," has found it unavoidable to tell us much about Mr. Moss also. A few excerpts will interest our readers, to whom the name of Moss is a studio-word.

Mr. Moss was a photographer when he married Mary A. Bryant, in Western Pennsylvania. His attention was first directed to photo-engraving when reading an account of the experiments made by Professor Grove in which he tried to produce engraved plates by etching out the Daguer-

\* Frank E. Housh & Co., Publishers, Brattleboro, Vt., one dollar a year.

rean image, but having failed to get his etchings deep enough to be of any practical value, it occurred to Mr. Moss that by using Professor Grove's method, he could etch through the Daguerrotype plate, and then change the plate to another solution, which would act upon the copper and would not act upon the silver, and by this means get the required depth.

He told his wife of his plan. "Why not try it at once? and I will help you."

"But I have no galvanic battery, and

washboard and copper kettle, with the sugar-bowl and teapot were brought into service, and very fair plates resulted. A long line of experiment and history followed, until 1864, when, writes Mrs. Housh, "the subjects of our sketch moved to New York, which has since been their home. They did not win success all at once, but every failure brought wisdom, and fulfillment gave courage. From a 'stock company' to a 'copartnership,' they passed to the 'Moss Engraving Company,' in 1880,



Caught at Play.

there is none to be had in this place, besides I cannot spare the money to buy one, if there were."

"Can't you make one yourself?"

"If I only had some copper and zinc plates, I have all the chemicals, but there is no such thing for sale nearer than Pittsburg."

Necessity proved to be the "mother of invention," and his mother's household

with John C. Moss as President and Superintendent, Mrs. Moss as Treasurer, and their son Robert as Assistant Superintendent, and now have the largest establishment of the kind in the world. We turn the pages of the great illustrated magazines, and the handsome new books whose portraits are called so true to life, and trace the name, 'Moss Engraving Company,' so modestly

hidden in the corner, with a great admiration for the woman who hoped against hope, who believed when others doubted, who worked with a will, and bravely waited for the reward of honest labor."

There is one characteristic thing about the lives of these good people. It was always "we." Writing to a friend, Mr. Moss relates this incident:

"It is only just to say that without the assistance of my wife, it is very doubtful whether I should have succeeded. She became quite as enthusiastic in the matter as myself. My other relatives had lost all hope of my ever succeeding, and did all they could for many years to dissuade me from pursuing it further."

Thus it will be seen how success has followed patient, persistent plodding.

As further evidence of how the Moss spirit keeps pace with photographic growth, we add the little Mosstype of *Caught at Play*. The negative was made by Mr. Miltenberger, of the Moss Engraving Company, by the magnesium flash light. It is one of those lovely house groups, so full of naturalness, which cannot be coerced, coaxed, or cajoled in the studio, but which home photography (by the flash) has made easily possible. And is it not an interesting evidence of "A Successful Life?"

### PRACTICAL ITEMS.

BY EMIL FREY.

I SEND herewith a series of notes. I can vouch for the practicability of every article here described, as all of them have been in use in my establishment for a number of years, and have given me the greatest satisfaction. I only regret that so few *practical* photographers can be induced to give us through our magazines their many wrinkles and dodges which they have gathered in the course of time. Are they afraid their next door neighbor might *catch on* to something? I am glad I am not *thrusty* inclined. I say let him catch on, that much *the better* for all concerned.

While I fully admit that the implements and apparatus we use should be the very best that can be procured, it does not ex-

clude the fact that there are a great many contrivances used in a photographic studio which any man of common ingenuity can make for himself, just as well and as good as the often high-priced commercial articles, and also save from two hundred to three hundred per cent. in so doing.

Try some of the following and report whether or no my assertion is correct.

#### I.—BLACK VIGNETTES.

For making the black or Russian Vignette. This is not a patented article, unless you choose to call it Frey's Patent. The two arms, A and B, are made of *stout* picture backing.

The arm A is sixteen inches long and about one inch in width. The arm B is eleven inches long, one and one-quarter inches wide, and is provided with a slot about one-sixteenth or one-eighth of an inch wide. The slot commences about three inches from the lower end and runs within two inches of the top. B is fastened to A by means of a screw eye provided with a metal washer (I find the cap of a copper rivet to answer the purpose splendidly). It will now be seen that the screw eye serves the double purpose of lowering and raising the vignetter and at the same time acting as a pivot to tilt the same to any angle forward or backward as the case may require. At the upper end of B fasten a small block to receive the vignetter proper. For the vignetter take a stout 8 x 10 or 10 x 12 photo mount, work out the segment of a circle, cut the shape marked and serrate the edge with teeth about one and a quarter inches long. Next take a piece of black velvet or velveteen and glue to the cardboard. Glue the teeth well, and avoid getting glue on the face of the velvet. Let it dry, and then cut out the teeth with a sharp penknife, keeping close to the pasteboard teeth. The latter proceeding will insure you a nice, clean job. The block C, which is fastened by means of a larger screw eye or thumb screw to the front of the lens, is made of somewhat heavier material (also wood). A is pivoted to C with another screw eye and washer. It will be seen from this arrangement that you can get

any position of the vignette you wish. If the vignette should happen to be too near the lens for a certain style of work, all you have to do is to move the screw eye a little further back on A. Finally, paint the woodwork dead black.

*Formula for Dead Black Paint.*—Lamp black, acetic acid, water, and a small quantity of liquid glue or gum arabic.

It took me about two hours to make the implement complete.

open on top to admit a 5 x 7 negative; in the same rabbet fits another slide carrying one-quarter size plates.

The cut will explain the apparatus more fully. Paint the inside dead black as per formula given before, and stain outside with cherry or walnut stain, then oil or varnish. You will have a camera equal to any in the market. Should any light enter between the slide you can easily prevent it by tacking a piece of orange calico in front with an

FIG. 1.

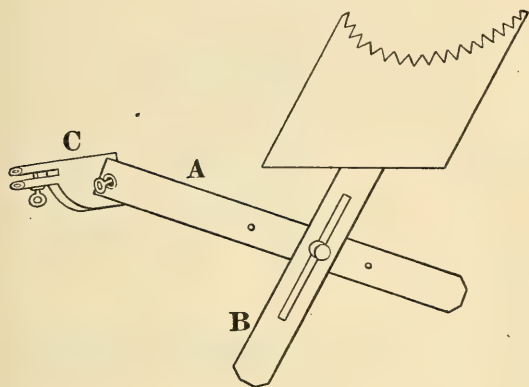
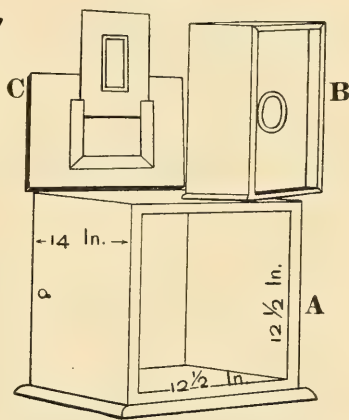


FIG. 2.



## II.—ENLARGING CAMERA FOR BROMIDE WORK.

A most useful and simple camera may be made as follows :

Let a carpenter make for you, out of well-seasoned pine or poplar wood, a box open at both ends. Dimensions of box,  $12\frac{1}{2}$  x  $12\frac{1}{2}$  inches and 14 inches deep.

The board which carries the lens, in Fig. 2, B, is bound in with four pieces six inches in width. B is made so as to slide snugly and smoothly in A, and serves the purpose of the bellows. Your lens should by all means be provided with a rack-and-pinion movement for the closer adjustment of the focus. The plate or negative holder, C, is made of well-seasoned pine stayed at the cross ends to prevent warping, and is fastened on inside of A at the back, by means of two wire nails or pegs, which can be removed at will. The holder has a bevelled cut-out four and three-quarters by six and three-quarters, surrounded by a rabbet slide

opening in the centre large enough for the lens to perform its duty. Cost about \$2.50 against \$25.00 or \$35.00.

## III.—LENS SCREEN.

Some time ago a commercial tourist, after selling me a bill of goods, accosted me as follows: "Now Mr. Frey allow me to show you a novelty in the way of a lens screen and a focussing attachment combined; the best thing you ever saw, and dirt cheap. I will put one on your box for \$4.50, and I am sure you would not, after trying it, work without it for three times its cost."

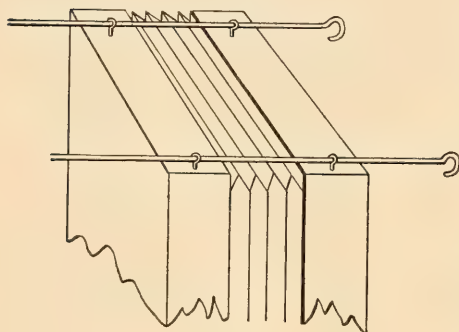
After politely listening to the gentleman's explanation, I told him that I had something which was not a novelty, as I had been using it for the last seven years, something *much simpler* and just as perfect as his, working on the same principle, and costing *only* \$4.45 less than his contrivance.

After seeing my five cent appliance he admitted that he could not excel it for simplicity and certainty.

To make a screen to exclude all extraneous light from your lens while exposing, and to protect your hair while focussing, proceed as follows:

Take two straight pieces of wire, about twenty-eight or thirty inches long (according to size of camera), a little more than one-eighth of an inch thick. Also four screw eyes with the rings just large enough to admit the wires and let them slide freely. This is all the material required. Two screw

FIG. 3.



eyes in front of the bellows and two behind on top of the box. The wires are then inserted, the focussing cloth thrown over the wires and camera and the *machine* is ready. The sliding of the camera bed while focussing does not interfere with the hood, as the weight of the cloth keeps it in position. While focussing, simply pull the wires a little backward so as to form a hood for your head; before the exposure they are pushed forward to protect the lens. The wires, of course, must run parallel.

#### IV.—THE USE OF PUMICE STONE IN A PHOTO STUDIO.

*1st. To remove gelatine blotches or splashes from the glass side of a negative.* Save your finger-nails and knives and use the following: Have upon your retouching desk and printing table a small box containing powdered pumice stone. To remove the gelatine, moisten the tip of your finger with saliva, dip it into the pumice, and apply with light friction to the spot. It will yield readily. Wipe off with a clean rag. The stone will *not* scratch the glass, but renders it more brilliant.

*2d. To clean picture and window glass.* The following will be found an excellent glass-cleaning medium:

Soft Water . . . . .	1 part.
Powdered Pumice Stone . . . . .	1 oz.
Prepared Chalk or Whiting . . . . .	1½ "
Liquor Ammonia . . . . .	½ "

Apply with a piece of chamois skin, then polish with a clean rag or soft paper. It will make the dirt fly.

*3d. To produce a needle point on a crayon pencil.* Take two pieces of pumice stone and rub them together until two flat and smooth surfaces are produced, which will be accomplished in a few seconds. Sharpen the pencil in the usual manner with the knife, getting as fine a point as possible, and then finish up on the pumice stone. Crayon workers will find this a very useful dodge.

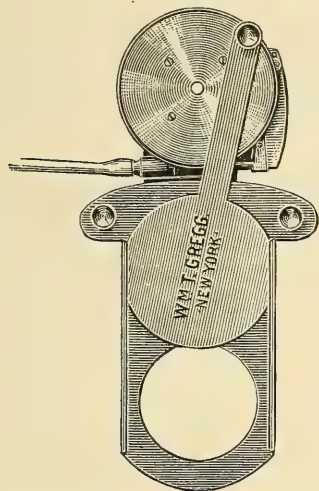
The stone will not answer for sharpening retouching pencils. Emery, I think, is the best for the latter.

### ON THE TIME AND INSTANTANEOUS SHUTTER COMBINED.

BY J. J. HIGGINS, A.M., M.D.

FOR a while past I have been using a shutter with such great satisfaction that I would call the attention of both the professional and amateur to its excellent qualities and desirability. I allude to a modification of the Grimstead (English) shutter—a shutter slipping into the diaphragm slot of the lens, instead of being fastened upon its collar. The use of this latter class of shutters is now about done away with, as the slap-bang of the powerful movement attaching them is anything but healthy for the lens, and their sag and cumbersomeness, with the constant recurrence of their slipping off from the lens collar, militates against them. With the introduction of the shutter between the lenses, a great advance was effected. Still parties do not like, as a rule, to have a new lens tube made, and consequently they have not come into general use. The Grimstead shutter, when first brought out, instantly elicited, and was deserving of, the highest commendation. Of but little size—light and

slipping into the diaphragm slot of your own lens tube—one could not be otherwise than pleased with it. It, however, lacked, among other things, in that the matter of time exposure was unprovided for. Newman's shutter (the latest) does so, but with clumsy mechanical contrivance. In the shutter which I am using, made by Mr.



W. T. Gregg, instantaneous exposure of graded velocity, as may be required—time exposure, *e. g.*, for portraiture, variation of stop or repression in diaphragm, all are combined with a mechanical elegance and beauty, and likewise lessening of size, that does indeed please. The cut which I append by no means does it justice. To see it, is to appreciate it, and I would advise all to do so.

## THE IMPOSSIBLE IN PHOTOGRAPHY?

BY THOMAS PRAY, JR.

THE burning question of late seems to be, preserving pyrogallie acid in solution; and with a persistence worthy of a better cause the devotees of this infatuation follow their "jack o' lantern" through the swamps, telling immense stories by the way, proving their willingness to quite elucidate the subject by making possible that which able chemists have pronounced impossible. Unfortunately there does still exist an occa-

sional reasoner, and such come to the surface with a sort of knockdown argument on the "great discoveries," or on facts that show the fallacy of the attempt, if any great length of time is to elapse between the mixing up of the compound and its use, as must necessarily take place when an amateur puts up four ounces of pyro in solution.

It must be understood we are writing for amateurs who use a pyro solution sometimes for months, frequently for weeks; quite unlike their professional brothers who may use four ounces in four hours on a busy day, and in some cases two or three such lots between morning and finish at night.

It would seem, to follow up the developer formulæ of five years, that the whole list of acids and *ites*, *ates*, and *ides*, and several others, have been invoked to aid in this chase after a very uncertain and fugitive character.

The writer held on to the old idea until absolute test proved his error of position.

It was clearly shown, nearly three years ago, that a solution of pyrogallie acid, a few weeks old, required *five grains* of pyro from that solution to accomplish what *two grains* from dry pyro would and did do. See PHILADELPHIA PHOTOGRAPHER, May or June, 1885 (now loaned to a professional, so not convenient for reference). Prof. Newton, previous to that gave the whole action chemically, and others followed, showing that a solution could be made, but that it rapidly oxidized, and became in proportion weaker and worthless.

What then are the reasons why pyro is called an acid? It is not. In chemical rating it is a tri-atomic phenol, and it is also known as "galline," "pyrogallol," pyrogallie acid being its usually adopted name ( $C_6H_3O_3$ ). When pure its perfection depends very much on its being made under nearly the exact number of degrees of heat. If heated too highly it is not so efficient, and its composition materially changes. It is soluble in three and a half parts of water, and under the new rating is  $C_6H_3(OH)_3$ , and when pure, as shown, will not influence litmus paper. It has a strong affinity for oxygen; in fact, it instantly undergoes a change by contact with chlorine, iodine, any of the acids that readily yield oxygen, or with

bromine, and it is this property that makes its value in photography, because it rapidly reduces the metallic oxides. If dry, it remains unchanged, but if put into solution "*it rapidly changes by the absorption of oxygen,*" and in this is used in chemical analysis to ascertain the percentage of oxygen gas in a mixture of any gases. This is practically the whole question. The moment pyro is put in solution it commences to lose its inherent power by absorption of oxygen gas, and whenever it comes in contact with any of the alkalies it is much more active, and the sooner spends the force by reduction, if in contact with the salts of silver, or by absorption of oxygen if in alkaline solution, and not in contact with silver nitrate, bromine, iodine, etc. Sulphite of soda has become very popular as a pyro preservative, and sulphite of soda is one of the most uncertain of chemical substances, more especially when in solution and exposed to the air, for it speedily comes to be sulphate, and as such is worthless as a preserver, preservative, etc. Sulphite of soda is  $\text{Na}_2\text{SO}_3 \cdot 7\text{H}_2\text{O}$ , and is made by passing sulphurous acid gas into a solution of carbonate of soda, and evaporating out of contact with the air. Sulphite of soda is worthless unless kept in glass or wax-corked bottles, and much of the stuff sold for sulphite of soda is worthless from its purchase. Here we have carbonate of soda, and one of the worst of chemicals put into chemical union to preserve a third, with a certainty that if even a little of the sulphurous acid action escapes, we then have pyro-alkali solution, with a certainty of spoiling.

But here comes the next mess—pyro, sulphite of soda, and sulphurous acid in solution. The first two items we have dwelt upon. Now we add more of the most fugitive, the most uncertain element in the lot, in order to keep the whole lot in subjection, with the certainty that if any change whatever occurs the sulphurous acid is first to disappear, and when we come to the chemistry of sulphurous acid we find acid 3.5 parts, water 96.5 parts, having in its own composition a strong affinity for oxygen with which it rapidly combines in the presence of water, forming sulphuric acid. Here, then, divested of all nonsense, we see a chemical marriage of

incongruous elements, incompatibles, and the result is a row in camp, and all the uncertainties attendant on domestic discord; when, if we will make up a solution of pyro and put in about  $3\frac{1}{2}$  to 4 minims of chemically pure sulphuric acid to 190 grains of pyro, using water positively free from acid or alkali, we will save expense and have a much more certain compound; or we will have a solution that "won't spile" so soon.

Formic acid has been recommended of late added to sulphite of soda, or to the water first, then sulphite and pyro. Formic acid (it may interest our readers to know is an active principle of rattlesnake poison, and is made, not from the *ant* as its name would indicate, but commercially from oxalic acid, glycerine, water, and high heat) is one of the best preservatives, and will do far better without sulphite of soda than with it. Formic acid should be handled with great care; if it touches the flesh in a diluted state it causes burning or stinging like a nettle sting—an almost forgotten fact, that the stinging nettle, *urtica dioica*, is one of the sources of its supply.

To follow out all the makeshifts is too much of a task. Phenic acid has been used, it being a phenol, and commonly known as carbolic acid, but used with varying success, and no permanence of results or continued satisfaction.

In my own experience oxalic acid has proved the only approximation to a preservative for pyrogallie acid in solution, when the solution has been kept for years, and it neither changes color nor loses its value in ratio to compare with all other mediums.

Oxalic acid is made from sugar and nitric acid, or sugar, nitrate of potassium (saltpetre), and sulphuric acid, and a weak solution is only a small absorbent of oxygen, and when absorbed carbonic acid is the result, with no sulphate, sulphite, or sulphurous, from beginning to end.

Oxalic acid is a virulent poison, and if used should be kept out of reach of children. If poisoning occurs get medical help of the best possible talent at the earliest moment. Vomiting, stomach-pump, chalk and magnesia in large doses and often. When this poison has been taken appearances are very deceptive, and death comes

in when, to all outward appearance (to the casual observer), the patient is recovering.

In my own experience sulphite of soda in too large a quantity proves to be a destroyer of pyro solution, and some of my amateur friends have found out the same thing by experiment. This is written expecting many persons will take exception, but the facts are here, and the moral is—use your pyro dry, make fresh solutions, and use a few drops of oxalic acid solution, 4 to 8 grains per fluidounce, then you can develop with constant results, and pleasure.

### AN EASY AND ECONOMICAL ENAMELLING PROCESS.

BY LOUIS REINHARDT.

ALL the receipts I have seen so far for enamelling albumen prints I find complicated, and taking too much time to finish and dry. As I do a great deal of this work, I take the liberty of sending my "modus operandi," as I can enamel two dozen cabinets in half an hour, and have them dry and mounted five hours after. Clear the plates, rub a little talc over them, and clear it off, then run around the edge a little gum Arabic, and let dry. Then flow with collodion. It is not necessary to rock the plate after flowing, as is customary with negatives (wet); simply let them drain from the lower corner, and place in this position on a drying rack. All this I do the evening before. Next morning I dissolve the gelatine in water, by placing it in a wide-mouthed bottle in a cup of water over an alcohol lamp. As soon as dissolved, place it in a flat dish. Have some strong white paper cut a little larger than your plates (I use 5 x 7 for cabinets), place one of these papers in the gelatine solution, and also a print; after half a minute place the print, face down, on the collodion side of the plate, and directly place the piece of paper over it, and with a few strokes of a stiff rubber sponge, remove the surplus gelatine into the dish. Let the plates dry in the shade two hours, then place in the sun for two or three hours more, and they are ready to be cut from the plate. If there is no sun, artificial drying is just as good.

To mount, dissolve gelatine in water (hot), pretty thick, run this round the edge of the back with a hair pencil, and quickly lay it on the mount and press down with a clean cloth; it will become fast in a moment and will never come off.

### NOTES FROM LONDON.

BY T. C. HEPWORTH, F.C.S.

PHOTOGRAPHERS on this side of the Atlantic have had much to do and to think about during the month of March which is just expiring. Exhibitions at Liverpool, Dundee, Gloucester, Nottingham, and at the Crystal Palace, Sydenham, have taken place, unfortunately all at about the same time. We want a little organization here. Some central authority who shall have power to arrange these exhibitions so that they shall not be open at the same moment. All would gain by this reform. Many of our best workers are far too busy to see after the proper mounting, framing, and packing of half a dozen different sets of pictures for as many different shows. But if a month or so elapsed between them it would be a different matter. It might then be worth while to construct a few handsome and strongly made exhibition frames into which pictures could be readily inserted without the usual nailing business. Such frames, with different pictures in them every time, might then go the round of the exhibitions to the profit of both sender and of visitors to the galleries.

In some respects the Crystal Palace Exhibition may be regarded as the foremost of all. Certainly so far as apparatus is concerned it is the best that has ever been held. All the principal firms in London were represented there, and it may interest many of your readers to know that the Scovill cameras with their capital construction, and simply arranged movements, met with great admiration. They were exhibited by the Eastman Company, who act as agents for these cameras in England. The Crystal Palace is well suited for exhibition purposes. In the first place it is far enough from London to be quite out of the city smoke, and its glass construction makes it

as full of light as a photographer's studio. This light had indeed to be subdued by a canvas awning which was hung a few feet above the picture screens, which stood along the nave of the building. At sundown the whole palace is lighted by arc lamps which are hung at intervals along the nave, and curiously enough the pictures were better seen under this light than they were in the daytime, for the reason that many of the screens were so placed as to permit reflection from the glasses which covered the pictures.

A fault which I alluded to in my last letter to the PHILADELPHIA PHOTOGRAPHER was rampant at the Crystal Palace. I mean that tiresome custom of exhibiting pictures which have already gone the round of the other exhibitions. I do not think that here the circumstance detracted from the general success of the show, because the Palace attracts, by its splendid concerts and other amusements, a vast number of people who would not be likely to visit a photographic exhibition *per se*. To these the pictures would all be new, and "where ignorance is bliss 'tis folly to be wise." Still I think that an exhibitor should show his best and newest work, and not depend too much on past victories for his fame.

Another important photographic event this month has been the two days meeting of the Conference under the genial chairmanship of Captain Abney. This Conference was started last year only by the Camera Club, an association with a superabundant amount of energy which nothing seems to quell and which altogether staggers, if it does not rouse, the parent society, as it is called. The conference drew together a large number of our best workers and fourteen good papers were read before it and discussed. They formed a record of the business done by the Camera Club during the past year, a record of which it might be proud.

It is as well that photographers have had all these events to occupy them in deed or in thought, for actual work has been next to impossible. The weather has been for some time simply outrageous. From my window I can see the spire of a church which is crowned with a noble weathercock, a glorious golden rooster put up there I suppose, both as a delicate if sarcastic com-

pliment to St. Peter, and in order that we inferior beings may tell the direction of the wind. Now, on Monday last St. Peter turned his noble tail eastward, indicating a genial western wind. On Tuesday his tail was just in the opposite direction and the ground was covered with snow. On Wednesday the turncoat saint again spoke of balmy breezes. I haven't had patience to look at him since, but as at present it is raining and snowing at the same time, and the pavement is covered with a layer of half-frozen slush I fancy that he must be hovering between North and East. So you may judge that the weather has not been favorable to photography. After waiting for a fine day for a long time I gave the matter up in despair and determined to do some copying work which I had in hand by artificial light. In the absence of electricity I used the lime light and employed two jets one on each side of the engravings from which I was making negatives. I was delighted with the results I obtained, and found that I could work with far greater certainty than with daylight. Next I tried the experiment of obtaining some small positives on glass, from large negatives, and here again I found the light pleasant and efficient to work with. Although the glare of light from the two powerful burners seemed so great in my room, I found that the exposure necessary was quite three times as much as would be required by daylight in the shade.

### NEW ORTHOCHROMATIC COLLODION EMULSION.

This emulsion is prepared as follows:

#### *Solution A.*

Bromide of Ammonium . . . 3.5 grammes (54 grs.).  
Water, sufficient quantity to dissolve the bromide.

Alcohol, warm . . . 40 c.c. (1 fl. oz. 3 drs.).  
Collodion at 40 per cent. 40 " " "

This solution should be kept in warm water during the operation.

#### *Solution B.*

Nitrate of Silver . . . 5 grammes (77 grs.).  
Water . . . 6 to 7 c.c. (ab't 2 fl. drs.).  
Alcohol, warm . . . 50 c.c. (1 fl. oz. 5 drs.).

Alcohol saturated with ammoniacal gas is added, drop by drop, until the precipitate which is first formed is dissolved. Heat and add again 40 c. c. of collodion at 40 per cent. Pour *A* into *B*, shaking well, and ascertain if there be an excess of bromide in the emulsion thus produced; allow to rest for two or three hours, then precipitate by water in the ordinary manner; dry the emulsion and redissolve it in the mixture of ether and alcohol.

This emulsion is colored by eosin in the following manner: Take one gramme of eosin (eosin of G. O. Schültz, of Dresden), which precipitate by an excess of nitrate; wash the precipitate first by decanting on a filter, and then with alcohol; now dissolve in alcohol to which ammoniacal alcohol (like that described above) has been added. Some of this solution of eosinate of silver is added to the emulsion until this last acquires a decided pink tint; it is now ready for use.

The plates are developed as follows:

Concentrated Solution of Carbonate of Am- monia . . . . .	20 c. c. (5½ fl. drs.).
Alcoholic Solution of Pyro, at 10 per cent. . . . .	2 to 3 c.c. (abt 40 min.).
Solution of Bromide of Potassium, at 10 per cent. . . . .	1 to 6 drops.

These plates reproduce without the interposition of yellow glass, chrome yellow more intense than the blue *d'outre-mer* and like cobalt blue, and the orange tint of chrome like the blue *d'outre-mer*. With pale yellow glass, vermilion shows more intense than the blue *d'outre-mer*.—*Photog. Wochenblatt*.

## DEVELOPMENT WITH HYDROXYLAMIN WITH THE ADDITION OF HYDROCHINON.

HYDROXYLAMIN as well as hydrochinon has been known for years, but owing to the high price of these preparations, they could not gain an entrance into photographic practice. Of late the Baden Anilin Manufactory, in Ludvigshafen, has produced hydroxylamin at a lower price and hydrochinon is also furnished for 8 Rmk.

per 100 g. by Schuchardt in Görlitz. The unfavorable results which many experimenters had with hydroxylamin development caused me to make a number of experiments myself, since I foresaw that the preparation possessed many valuable qualities.

The experience, which many have had, that plates become spotted in the development recommended by Messrs. Egli and Spiller, I can only confirm, and my efforts were at first directed to the removal of these. I said to myself that mucous substances could mitigate the effect of the caustic soda solution, so I tried, without result, the addition of dextrin, then a soda-water glass with good effect, but the layer would become thereby bare; then I took common syrup, and observed that, by this means, it worked excellently and developed even, but the development was much retarded. An addition of sugar water is not sufficiently useful, but there can be added, and with success, a smaller portion of syrup, and thus I have found the following mixture good:

### Solution A.

Caustic Soda . . . . .	1 part.
Water . . . . .	8 parts.
White Sugar . . . . .	8 "
Syrup . . . . .	4 "

### Solution B.

Hydroxylamin . . . . .	20 parts.
Distilled Water . . . . .	50 "
Alcohol . . . . .	250 "

I mix both solutions, two parts *A* and one part *B*, and add water in the proportion of 1 : 5. Unfortunately, this development gives only thin negatives and in trying to remedy this I met with great success by adding to each development from a hydrochinon solution 1 : 10 alcohol 25 to 30 drops.

The course of the development is as follows:

After one minute the first sign of a picture appears, then presently the shaded parts follow, the depths remain brilliant and after five or six minutes the development is finished. The negative must then be laid instantly in an alum bath and left there until the layer does not resist (push-off) the bath any more, then it is well rinsed, and fixed, and washed as usual. This

developer is not suitable for instantaneous pictures, but only for well-exposed pictures of landscapes and reproductions; it works very nicely, gives much detail in the shades, and has the property of holding back the bright sky in landscapes, and consequently the picture is worked harmoniously. For portraits too, this development is good, but rather tedious for many photographers. These solutions can be previously prepared in the above-given proportions, and can be kept for a week, but the gelatine easily assumes a yellow tone which is, however, harmless. I even find that the negatives produced by the previously mixed solution, show more contrasts. The developing solution becomes brown after a while, but it is possible to develop two plates, one after the other.—*Photogr. Correspondenz.*

### PRACTICAL POINTS FROM THE STUDIO.

**SEPIA PHOTOGRAPHIC PRINTS WITHOUT SILVER.**—1. Mix with water a certain quantity of sepia pastels prepared for aquarelle painting, and make a liquid just thick enough to run from the vessel that contains it.

2. Now take of this mixture 1 part, saturated solution of bichromate of potash 4 parts, aqueous solution of gum Arabic having the consistency of thin varnish 4 parts. Mix, and spread with a flat brush over the paper attached to cardboard; allow to absorb for two minutes without permitting any portion of the coating to become dry. Cause the liquid to penetrate into the paper until it presents an equal tint, brown or a yellowish-gray; terminate the drying with aid of heat. The exposure may vary, in full sunlight, from five to six minutes, whilst in diffused light it may last from one to two hours. When the print comes from the frame plunge it into tepid water to develop. The image shows itself gradually; when the effect is judged to have been reached, pass it under a tap of cold water, dry by suspending from a corner, and the print is now finished.—*La Nature.*

**STRENGTHENING PLATINUM PRINTS.**—Dr. Vogel has succeeded in strengthening

weak platinum prints by operating as follows: he adds to thirteen fluidrachms of water from three to five drops of a solution of chloride of platinum and of potash, at one-sixth, and one fluidrachm of the oxalate developer. He pours this mixture on the print to be strengthened, previously placed in a dish. The solution gradually becomes black by the platinum, which is reduced, forming a partial deposit on the print; the non-utilized platinum is recovered in the form of a black powder and may be converted into chloride.—*Photo. Mittheil.*

**DISENGAGEMENT OF CHLORINE BY THE ACTION OF LIGHT ON CHLORIDE OF SILVER.**—At the London Photographic Association M. Briginshand described an experiment which proves that by the action of light on chloride of silver, chlorine is given off by this salt. The chloride of silver is placed in a bent tube, closed at one end, and of which the open end is immersed in distilled water. Expose to light for a few days; chlorine will then be found in the distilled water, which is easily shown by adding to it a drop of the solution of nitrate of silver which immediately produces a precipitate of chloride of silver. The same photographer indicates another simple experiment proving the same thing: A piece of ozonoscopic paper, that is to say, coated with starch containing a little iodide of potassium, is suspended in a vessel, at the bottom of which some chloride of silver has been placed. If this vessel is exposed for some time to light the paper will rapidly become dark, the author says, by the action of the chlorine evolved. I would like to see these experiments confirmed. We should be certain that the chloride of silver is pure and altogether free from chlorhydric acid or nitric acid. If what is mentioned above occurs with pure chloride of silver, as Mr. Briginshand asserts, it would be possible in this way to determine the quantity of chlorine disengaged from a given quantity of chloride of silver.—**DR. PHIPSON.**

**A NEW DEVELOPER FOR GELATINO-BROMIZED PAPER.**—The *Photographic News* publishes the formula of the new developer for gelatino-bromized paper, praised by Dr.

Just, manufacturer of photographic paper at Vienna, Austria. This preparation gives, on this paper, the same reddish-brown tones remarked on albumen prints.

There are two solutions, A and B.

## A.

Water . . . . .	34 fl. oz.
Chlorate of Potash . . . . .	23 drachms.

## B.

Water . . . . .	17 fl. oz.
Ferrous Sulphate . . . . .	6 drachms.
Citric Acid . . . . .	31 grains.
Bromide of Potassium . . . . .	31 "

According to the instructions, mix equal portions of these two solutions before using. In mixing add B to A.

**NEW EXPERIMENTS WITH HYDROXYLAMINE.**—Numerous experiments have recently been made with hydroxylamine as a developing agent. The alcoholic solution is used (hydroxylamine 1, alcohol 15), and in conjunction with a solution of caustic soda (soda 1, water 8). The most simple formula adopted is:

Water . . . . .	2 fl. oz.
Hydroxylamine . . . . .	46 grains.
Caustic Soda . . . . .	62 "

But many photographers prefer:

Alcoholic Solution of Hydroxylamine . . . . .	65 minims.
Solution of Caustic Soda . . . . .	1 fl. dr.
Water . . . . .	11 to 13 drops.
Solution of Bromide of Potassium (1:10) . . . . .	1 to 2 drops.

as may be necessary.

The tones given by this developer are bluish-black, but the negatives have but little density.

## ON THE REVERSED IMAGE.

BY DR. J. PHIPSON.

ONE of the most curious of the phenomena occurring in photographic practice, is certainly that of the reversed image. It has been some time since we alluded to it, but to-day this subject is again brought into notice. When the French astronomer, M. Janssen, was first engaged in the photo-

graphic reproduction of the solar disk, he found that by giving too long an exposure he obtained not a negative print on the plate, but a positive print; this was perceived on developing the plate. By continuing this experiment, he showed that if the exposure is still further prolonged, the image is again reversed, and a negative is obtained. In these experiments the proper exposure gave a negative; an exposure of from 100,000 to 200,000 times longer gave a positive; an exposure of 1,000,000 gave again a negative. Since, it has been found that with gelatine bromide plates the effects of the reversed image often show themselves in an incomplete manner, and give an injurious result. Thus Mr. Bennett has found that by giving an exposure double that necessary to obtain a negative of suitable density, an image is obtained having but little density; and if this exposure has been increased ten times, the plate does not seem to have been exposed. The most brilliant portions are the first to undergo this effect of reversing; that is to say, they are thinner (less dense) in the negative than they should be, which produces a flat and hard image where there should be brilliancy and transparence. Some operators believe that this defect is inherent to the photographic process in general. Mr. Chapman Jones has shown that this is why diluted or weak developers give better results than strong developers; they oppose the effects of reversing. This phenomenon has been made use of with a view of obtaining a *direct negative image by means of a negative*. The following method of M. F. Bolas is given as a practical process for this purpose.

A plate of bromide of gelatine is steeped for a few minutes in a four per cent. solution of potash, then rinsed with alcohol at fifty per cent.; after drying, it is exposed under the negative to be reproduced from two to five minutes in full sunlight, and from ten to fifteen minutes in good diffused light. The plate is now washed in cold water, and developed with pyrogallie acid rendered alkaline. In this case the action of the bichromate has not been explained. Perhaps it is not absolutely necessary. A singular phenomenon of this nature was recently related by Mr. Everett, of London. A plate

was exposed in contact with a negative, and developed with an ordinary solution of pyrogalllic acid. A very weak positive only, was obtained. Then it was determined to make partial use of another developer. In the obscurity of the dark-room, and accidentally, a bottle of the solution of ferricyanide of potassium was taken instead of a bottle of pyrogalllic acid. Seeing that the image was rapidly disappearing, the solution of ferricyanide was quickly thrown aside, and a developer with pyrogalllic acid was again made use of. Then instead of a positive a negative was obtained which, like the positive obtained in the first place, had but little density.—*Moniteur*.

### THE OPEN CORNER.

PRACTICAL ESSAYS ON ART. By John Burnet. Arranged and edited by Edward L. Wilson, and published by him at 853 Broadway, New York.

THE essays of John Burnet have been the guide and friend of many an artist, who has afterward made a name in the world. And many a one who is now getting gray-headed would willingly acknowledge his indebtedness to that clever writer for a great deal of the knowledge which has helped him on his way. Burnet has published three of these essays.

Dr. Wilson has hit upon the very happy idea of reproducing these three valuable works bound into one volume—with all the original illustrations. The book, indeed, is a fac simile reproduction of the originals, both pictures and text being copied by the aid of photo-lithography in the hands of the Photogravure Company of New York.

The reproduction of a work of this kind must be a very costly experiment, but its existence only requires to become known to insure a large sale among amateur photographers, most of whom are beginning to understand that a knowledge of art principles is somewhat more important on the production of pictures than exposure tables and developing formulæ. They cannot have a better guide than this book of Burnet's, for not only does it explain matters in a very clear manner, but its precepts are supported by examples from the works of

those whose names are writ large on the page of art history.

This book, too, ought to be a godsend to those butterflies of society who go to the Academy and other picture galleries, because it is the correct thing to do. They, as a rule, know nothing of art, but they talk about it as if they did, and Burnet would assist them to a few fresh ideas.—*The London Camera*.

While all parts are of great value to the student, we think the part on "Education of the Eye" will be found of most practical value to the photographer, as that organ is very deficient, and much in need of education.

The work is printed in clear, large type, making it very easy to read. It is strongly bound, and will prove a valuable addition to any library.—*St. Louis Photographer*.

DR. EDWARD L. WILSON,

MY DEAR SIR: *Mosaics* and the two numbers of the PHILADELPHIA PHOTOGRAPHER (for which my best thanks) came duly to hand, together with *Burnet* in his modern garb.

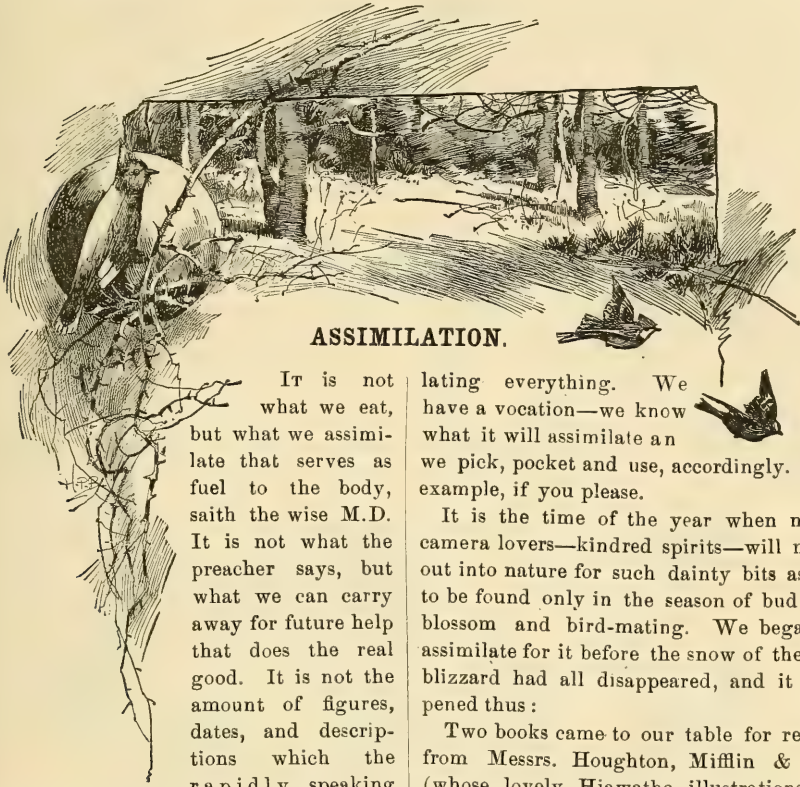
With Burnet I am very much pleased, and photographers and all other artists owe you a debt of gratitude for giving them the opportunity of becoming possessors of such a work. There are certain books which do not lose their value through time, but which, being out of print, become exceedingly scarce, and are only to be found in big libraries. Hence they are not accessible to those to whom their contents would be of the greatest value and assistance. Any one who, like you, reproduces a book of this kind, and makes available the knowledge contained in it renders a distinct service in the cause of culture.

Yours, sincerely,

C. H. BOTHAMLEY.

THE YORKSHIRE COLLEGE, LEEDS, ENGLAND.

PHOTOGRAPHY AT ST. PETERSBURG.—Dr. Vogel says that at St. Petersburg all the court, including the Emperor, have taken up photography. He saw a photograph made by the Emperor, on a plate 25 x 30 centimetres, representing the iron-clad "Vitzat."—*Phot. Mittheil.*



### ASSIMILATION.

It is not what we eat, but what we assimilate that serves as fuel to the body, saith the wise M.D. It is not what the preacher says, but what we can carry away for future help that does the real good. It is not the amount of figures, dates, and descriptions which the

rapidly speaking lecturer rattles away at you, but the amount you hear and understand which informs you—in each case only what you assimilate is of service to you. There is in all men this principle of assimilation. From books, companions, and circumstances, they extract just such parts and principles as will serve their purposes. With no one is this more a fact than with the lover of the beautiful—with the artist true. Out of the heterogeneous mass of materials which comes to him, his nature converts to his own use whatever is appropriate to his work. As time goes on, his capacity for assimilation becomes enormous. Almost everything presents some beauties to him, and he learns to produce beautiful works even out of very unpromising materials.

We see this every day as we follow our enjoyable vocation. Our years have led us athwart the time when our mind is beyond being like a boy's pocket or the stomach of an ostrich—capable of taking in and assim-

ilating everything. We have a vocation—we know what it will assimilate and we pick, pocket and use, accordingly. An example, if you please.

It is the time of the year when many camera lovers—kindred spirits—will move out into nature for such dainty bits as are to be found only in the season of bud and blossom and bird-mating. We began to assimilate for it before the snow of the late blizzard had all disappeared, and it happened thus:

Two books came to our table for review from Messrs. Houghton, Mifflin & Co., (whose lovely *Hiawatha* illustrations our readers will remember), Boston, as follows:

*Men and Letters, Essays in Characterization and Criticism.* By Horace E. Scudder. 16mo. \$1.25. And,

*Bird-Talk, a Calendar of the Orchard and Wild-Wood.* By Mrs. Adeline D. T. Whitney. \$1.

In them we found much that we would advise art lovers to read.

What is there in these for the artist to assimilate? Much, very much. In the first, ignoring all the charming things said about "London as a Classic," "American History on the Stage," Emerson's Self," "The Shaping of Excelsior," and many other topics, the paper on "Longfellow and his Art," will delight and improve the best artist in our land. A few lines from pages 44 and 45 will give the methods of that immortal artist and make our meaning plainer.

"He was like one who sees a landscape in a Claude Lorraine glass; by some subtle power of the mirror everything has been

composed for him. Thus, when he came to use the rich material of history, of poetry, and of other arts, Longfellow saw these in forms already existing, and his art was not so much a reconstruction out of crude material as a representation, a rearrangement, in his own exquisite language, of what he had found and admired. He was first of all a composer, and he saw his subjects in their relations rather than in their essence. To tell over again old tales, to reproduce in forms of delicate fitness the scenes and narratives which others had invented—this was his delight; for in doing this he was conscious of his power and he worded with ease. Thus it is that lyrical translations which he made in his student days are really his own poems; he rendered

and features of a living being, may be said not only to copy but to translate. But the sculptor cannot represent in marble the beauty and expression of the human eye; and in order to remedy this defect as far as possible, he is forced to transgress the rigid truth of nature. By sinking the eye deeper, and making the brow more prominent above it, he produces a stronger light and shade and thus gives to the statue more of the spirit and life of the original than he could have done by an exact copy. So, too, the translator."

And "translation" in art is assimilation.

As to *Bird-Talk*, no amateur photographer should go out into the field this season, until the whole of this charming



the foreign form in a perfect English form; his work in this regard was that of an engraver, not that of a photographer. He has himself said on the general subject of translation:

"The great art of translating well lies in the power of rendering literally the words of a foreign author, while at the same time we preserve the spirit of the original. But how far one of these requisites of a good translation may be sacrificed to the other, how far a translator is at liberty to embellish the original before him while clothing it in a new language, is a question which has been decided differently by persons of different tastes. The sculptor, when he transfers to inanimate marble the form

little "Calendar" is taken in and assimilated. We can imagine how many hours of toil and patient waiting and hiding and scrambling through the hedges and the briars the fair authoress underwent when collecting the words for *Bird-Talk*. The book is a song of songs. The publishers have headed each month with a splendid engraving. For example, at the head of this paper is the one for February, which month Mrs. Whitney has devoted to the Blue-Jay—the "saucy, chattering, scolding Jay!"

After describing the "something glorious something gay," a crow is met "in the thorn-thicket" and the "Talk" runs on thus:

"Say, say, say!

So, so, so!

Did you see, did you see

Cousin Crow—ho, ho!

Where did he, where did he,

Where did he go?

D'ye know?

He's a quack, quack, quack,

With his clack, clack, clack!

He's a villain, he's a villain,

And he's black, black, black!

"Stay, stay, stay!

Whatsay, whatsay?—

Then ye know

I'm a crow."

Is it not charming?

For June we find another pretty heading  
(page 242).

It is full of study for the camera lover and if he will look down from the trees into the hedges and among the trunks and roots of the trees he can collect material for next season which will enable him to form combinations that will be as charming as the dozen studies which embellish *Bird-Talk*.

The Vireous is the June attraction. Discovering a possible mate as he flies among the leaves of "the old ash tree," he says:

"Sweet little witch  
Do you love me?"

The coy maiden asked "time to consider," but before she had "considered for half a wink" he was back again and

"He hushed his voice to a plaintive trill,  
But under his breath it quivered still:

'Little witch, little witch,

I love—you so;

Maybe—more

Than you wish to know!'

Then low she twittered:

'That's different!

Why did n't you—tell me

What you—meant?

You love—me—much—

And you love—me—more—

Why did n't you say it

So before?"

Ah, then there was chatter—then there was  
glee:

And the honeymoon sped right merrily.

I heard it all 'neath the old ash tree;

It was so like other folks' ways, you see!"

And so the *Bird-Talk* runs on, as full of suggestions for the camera lover as it can

be. And what is meant by all of this? Simply, that to enjoy art you must study it everywhere, and what you study—assimilate.

## MODERN PHOTOGRAPHIC ENGRAVING AND PRINTING.

BY GEORGE S. WATERLOW.

THE subject of the modern application of photography to the art of engraving and printing is one of stupendous interest to all communities, of immense value to future generations, and teems with interesting details. I cannot but feel that within the compass of this short paper which I have the honor to place before you this evening, it is not possible or desirable that I should attempt any historical account of the various researches and experiments which at the present time place us in possession of the means of illustrating by practical and easy methods every subject of art, life, and nature, methods but vaguely dreamed of a generation ago, even by the most sanguine enthusiasts.

Neither should I endeavor to criticize the merits of specific processes or the busy researchers themselves, but I am here simply to describe to you as concisely as possible some of the means by which to-day we may produce illustrations of every description through the powerful agency of the camera.

First, I will take the names of some of the various methods, and then describe the practical working of each as plainly as I can, avoiding the use of technical terms.

Modern photographic engraving and printing may be divided into four heads:

1. *Typographic blocks*, which are etched in relief and printed from the surface in an ordinary printing-press.

2. *Plates*, which are etched in intaglio and printed from the depth, as in the case of an engraved copper-plate.

3. *Woodbury blocks*, which are impressed with an intaglio image by a gelatine relief under great pressure, and printed from by a special press.

4. *Collotype or albertype plates*—i. e., a surface of gelatine on glass or metal, which has been sensitized, acted upon by light

through a negative, and is printed from in a hand or steam printing-press.

The most important of the many photographic methods now before the world for mechanically producing prints on paper in the printing-press is that which is popularly named photo-zincography, and is the first referred to on my list.

Before proceeding to a description of the working of this useful process, I might explain, for the benefit of the tyro, that nearly all the results obtained by these processes are founded on the simple fact that gelatine, in the presence of salts of chromium, is rendered insoluble in exact proportion to the amount of light allowed to fall upon its surface. In this peculiar property of the organic substances previously soluble in water, as in the case of gelatine, lies the whole secret of nearly every photo-mechanical process, and in its various modifications lie the initiatory stages of all the different categories just mentioned to you.

I will briefly explain this action. Suppose I dissolve ten grains of gelatine in an ounce of water, and add ten grains of bichromate of potash ( $K_2Cr_2O_7$ ), then coat a sheet of smooth writing paper with the mixture and dry it in the dark. On now exposing this piece of prepared paper under a negative of a drawing in lines for say ten minutes in sunlight, I obtain a faint image or print of the drawing in insoluble gelatine, because wherever the light has penetrated the clear parts or lines of the negative it has, through the addition of the bichromate of potash so oxydized and changed the nature of the gelatine that it cannot again be dissolved even in hot water. But there is yet another valuable property to be mentioned in connection with this oxydized gelatine, and that is its capability of taking printing-ink. Suppose I take this exposed piece of gelatinized paper, acted on by light as mentioned, and soak it for a few minutes in cold water, then roughly drying it with blotting-paper, lay it on a flat board, and, taking a roller charged with printers' ink, pass it gently over two or three times, I shall find that the exposed lines will greedily take ink from the roller, whilst the unexposed or white parts will refuse the slightest particle. I shall now have a fac simile copy

of the lines of my negative in printers' ink on the gelatinized piece of paper, and if the ink I used were what is known as transfer ink, the inked piece of paper would be a photolitho transfer, and ready as soon as dry for laying down upon a lithographic stone for printing from in the ordinary way, or, if desired, a plate of zinc might be substituted for the lithographic stone, and by passing the zinc plate through a press in contact with the transfer, the greasy ink would leave the gelatine and attach itself to zinc, giving a plate ready for the photo-zinc etcher to make into a typographic block.

Having thus roughly sketched the general principle of the foundation of nearly all photo-mechanical printing, I will briefly discuss the processes referred to, and endeavor to describe the working.

As I remarked, the most important process, owing to its simplicity and cheapness, is that of photo-zinc etched blocks for ordinary typographic printing. I can, of course, only simply state the generally employed method of producing these blocks, and slightly touch upon the other subjects within the limits of this paper. For exact formulæ and details for successfully working any one of these processes, I must refer you to specialists who make these arts a life study and to the few works at present published on the subjects.

First, then, the operation of etching a type block, say from a line drawing.

The drawing intended for reproduction is pinned on a board and placed squarely before a copying camera in a good even light. The lens used for this purpose must be capable of giving a perfectly sharp picture right up to the edges, and must be of the class called rectilinear, *i. e.*, giving straight lines. The picture is then accurately focussed and brought to the required size; a plate is prepared in the dark-room by the collodion process, which is then exposed in the camera for the proper time and developed in the ordinary way; after development, the plate is fixed and strongly intensified in order to render the white portions of the drawing as opaque as possible. On looking through a properly treated negative of this kind it will be seen that the parts representing the

lines and black portions of the drawing are clear glass, and the whites representing the paper a dense black. The negative after drying is ready for the next operation—*i. e.*, printing upon zinc. This is done in several ways. One method will, however, be sufficient for the purpose here. I obtain a piece of bichromatized gelatine paper, previously mentioned, and place it on the face of the negative in a printing-frame. This is exposed to sunlight (if there is any) or daylight for a period varying from five to thirty minutes, according to the strength of the light. This exposed piece of paper is then covered all over with a thin coating of printing-ink, and wetted in a bath of cold water. In a few minutes the ink leaves the white or protected parts of the paper remaining only on the lines where the light has passed through the negative and affected the gelatine. We now have a transcript of the drawing in printing-ink on a paper which, as soon as dry, is ready for laying down on a piece of perfectly clean zinc, and passing through a press. The effect and purpose of passing this cleaned sheet of zinc through the press in contact with the picture on the gelatine paper is this: Owing to the stronger attraction of the greasy ink for the clean metal than for the gelatine, it leaves its original support, and attaches itself strongly to the zinc, giving a beautifully sharp and clean impression of our original drawing in greasy ink on the surface of the zinc. The zinc plate is next damped and carefully rolled up with a roller charged with more printing-ink, and the image is thus made strong enough to resist the first etching. This etching is done in a shallow bath, which is so arranged that it can be rocked to-and-fro. For the first etching, very weak solution of nitric acid and water is used; the plate is placed with this acid solution in the bath, and steadily rocked for five or ten minutes. The plate is then taken out, washed, and again inked; then it is dusted over with powdered resin, which sticks to the ink on the plate; after this the plate is heated until the ink and resin on the lines melt together and form a strong acid-resisting varnish over all the work. The plate is again put into the acid etching-bath and further etched; these

operations are repeated five or six times, until the zinc of the unprotected or white part of the picture is etched deep enough to allow the lines to be printed clean in a press, like ordinary type or an engraving wood-block. I ought, perhaps, to explain that between each etching the plate is thoroughly inked, and that this ink is melted down the sides of the line, so as to protect the sides as well as the top from the action of the acid; were this neglected, the acid would soon eat out the lines from below. The greatest skill and care is, therefore, necessary in this work, especially so in the case of some of the exquisitely fine blocks which are etched for some art publications.

There are many details which are necessary to successful etching, but those now given will be sufficient to convey to you generally the method of making the zinc plate for the typographic block. After etching, there only remains the trimming of the zinc, a little touching-up, and mounting it on a block of mahogany of exact thickness to render it type-high, and it is now ready for insertion with type in the printer's form.

From a properly-etched plate, hundreds of thousands of prints may be obtained, or it may be electrotyped or stereotyped and multiplied indefinitely.

The next process on my list is engraving on copper in intaglio. There are many names now in vogue for this beautiful process, but it is best known by that of "Photogravure." The difference between an intaglio and relief engraving is implied by their names. In the one we are now to deal with the lines or ink-carrying parts of the plate are sunk below the surface, instead of being highest, as in the case of relief or type blocks.

The great advantage of this process in point of beauty over that of zinc surface blocks is, that we are able to reproduce a drawing which is made with washes instead of lines, a painting, or a photographic portrait or landscape; but for commercial and general purposes it is not so useful as type-blocks, because of the expense and slowness of the printing. The ink has to be rubbed into the lines and hollows of the plate, and the surface perfectly cleaned for every impression.

There are many methods of producing these plates by the aid of photography, but details of most of them are either unpublished or are worked as secret processes. I shall, however, be able to indicate the method to you in general terms.

Instead of a negative, a positive on glass is required for the first operation. This positive must contain every gradation of tone in the original, and be as nearly perfect as possible. Next, a solution of gelatine, sensitized with bichromate of potash, and containing a graining matter, is thickly spread over a glass plate and dried; when dry it is stripped from the glass and placed with the glass positive in a printing-frame, and strongly printed. After printing, the film of gelatine is attached to a metal plate, and developed with water like a carbon print; when sufficiently developed, the film is allowed to dry; on examination it will be found that the picture appears in the form of little elevations and depressions over the surface, the blacks being the highest and the whites almost bare metal, each gradation of tone in the positive being a different elevation in the gelatine. This film may now be brushed over with powdered graphite and placed in the electrotyping bath, and a printing copper-plate produced.

Another method is to sensitize the surface of the copper itself with the same grained bichromatized gelatine, expose it under a positive, and bite through with "perchloride of iron;" the etching fluid passes through the parts protected from light by the positive, and etches the copper in exact proportion to the solubility or insolubility of the exposed gelatine surface. This is the simplest of the many processes, and it answers well for a small number of printings, but it is not deep or strong enough for much hard work.

I now pass to a different photo-mechanical printing—*i. e.*, Woodbury printing.

This ingenious process is, like the others, founded on the peculiar oxidizing action of gelatine in the presence of bichromate of potash; the process has now been before the world so long that most of you will be familiar, if not with the actual process, at least with its production. Great credit is due to the originator of this admirable pro-

cess, and for the complete and practical issue to which he brought it.

Gelatine with bichromate of potash is spread upon levelled plates of glass, dried, and stripped; the film thus obtained is exposed to light under an ordinary negative; the film is then cemented, face down, on glass, and washed for several hours with hot water. After being allowed to dry, the film is again stripped from its support, and presents the appearance of a delicate piece of silk, with an exquisitely modelled picture in fine relief. Its texture, delicate and fragile as it may appear, possesses extraordinary strength, and in the next operation is subjected to a pressure of hundreds of tons in contact with the hardest steel, and comes out of the ordeal unharmed, and ready to be used again and again without injury. The printing-plate or block is made of hard, rolled lead, and is placed face down on this gelatine film or relief on a steel block in a powerful hydraulic press, where it receives immense pressure—often that of five hundred tons. The raised image on the gelatine is thus forced into the lead plate or block, and gives a mould ready for the special printing it is to receive.

The printing is rather difficult to explain. The lead mould is laid on a plastic cushion on the bed of a small press, and its face brought up almost, but not quite, with a sheet of plate glass cemented to an iron lid (or platen) hinged on top of the press; the hinged lid is lifted by the printer, and he pours on the mould warm ink, made of gelatine and coloring matter. A sheet of prepared water-proofed paper is laid on the pool of ink, and the lid shut down and clipped by a lever motion; this spreads out the gelatine ink over the entire mould, squeezes it away from the highest parts, or whites, and leaves it only in the hollows, or dark and toned parts of the picture. In a few minutes the warm layer of ink cools and sets, and on the press being opened, the sheet of paper with the ink from the mould adhering to it is carefully removed. This is the Woodbury print, and now only requires drying and fixing in alum to make it the finished permanent photograph which is so familiar to all.

We now come to collotype printing, and

it is, perhaps, of all methods of photo-mechanical printing the one which lends itself to the greatest variety of effects; every one of the previously mentioned processes can be closely imitated by it.

It is, above all others, the best process for fac simile reproductions in large numbers, reproducing an engraving, a line drawing, a wash drawing, a photograph of nature, or from life, all with equal facility. The principle of the process is, as in the others, founded upon the altered nature of gelatine with bichromate of potash after exposure to light, but in this case differing from those mentioned previously in the fact that the printing begins and ends with the original gelatine surface. It is very simple—a thick sheet of plate glass (sometimes metal is used) generally, but not necessarily, ground on the surface, is first coated with a substratum containing silicate of soda and albumen (15 to 1) which has a great holding power; when this coating is dry, the surface is re-coated with a solution of gelatine and bichromate of potash, and dried quickly in a hot dark-room or chest. The plate is now ready for exposure under a negative (either a collodion or ordinary dry plate), which must be reversed. After proper exposure, according to the density of the negative, the plate is thoroughly washed in water and dried; only a faint trace of the image or picture can be seen on the plate at this stage. It is now placed in a printing-press (generally lithographic) damped with water, and a leather roller charged with printing-ink passed carefully over the plate.

Now is seen most clearly the curious and interesting action of light upon the prepared gelatine—the gelatinous surface receives the printing-ink from the roller in exact proportion to the amount of light that has passed through the different parts of the negative, *i. e.*, where there are blacks in the picture the plate inks up solid; where white, it will take no ink at all; and where half-tones exist, it takes ink in the same gradation all over the plate. It only remains now for the printer to lay a sheet of printing-paper, smooth or rough, upon the plate and to pass it through the press. The result will be a collotype print. One can also print excellent copies of any subject

upon calico, linen, satin, and other fabrics. A good plate will give four to five hundred copies, sometimes one thousand. Ink of any color may be used and any paper. The prints may be varnished and mounted like ordinary photographs, or they can be printed on paper with white margins.

With these few remarks I conclude my paper. These arts, but briefly described, which have, as I have stated, numerous allies, open up a field for further advancement beyond the limits of ordinary speculation.\*

They already have created an industry which capital has not been slow to encourage, and which gives employment to thousands where only twenty years ago but a few were earning by it a livelihood.

Through these means our homes are enriched with true copies of works of art, and at a low cost even the poor man has within his reach, illustrations with which to cover the walls and educate his taste. And who shall gainsay that through photography may future generations receive the greater blessings that accrue to human life by the mind being raised to higher and better aims through the refining influence of art and knowledge?

From the *Camera* and its allied arts, cheap and faithful pictures are placed within our reach, of art in its highest forms, of the beauties and the wonders of the world we live in, of our mountains, rivers, seas, and lakes, our cities in countries of every clime. Nature in all its grandeur, life in all its details is spread at our feet.

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## THE PRESENT VALUE OF ART IN PHOTOGRAPHY.

BY J. F. MOSTYN CLARKE.

THE subject I have chosen for my paper to-day is one very important to the photographic public, one upon which I would see the attention of the photographic world more firmly rivetted, but one, I am glad to think, daily enlisting new advocates in its cause, and becoming more and more present as a question of the day in the minds of us

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\* All are taught in Mr. Wilkinson's new book. See advertisement. \$3.00.

who are eager to advance the art side of photography.

I cannot, in the brief time necessarily allotted to each of us, hope to go deeply into the present state of art as existing in modern photography, neither am I anxious to force my own personal views upon photographers at large; but I do wish, by an appeal to those present, with a brief outline of existing things as seen from my own point of view, to sow a small seed that may take root and grow in the minds of many; to place, as it were, a closed casket upon the table of our conference that those assembled may, by their united wisdom, seek and find the secret of its opening. To be more prosaic: I would bring forward the subject, I would quietly state my thoughts—thoughts that have been present in my own mind for many years—asking every one to contribute their share of thought and labor, thus gaining the advantage of many witnesses.

Photography has increased so enormously of late years that I believe it true to say no home exists in the kingdom, rich or poor, but has beneath its roof a photograph of some kind.

Let us consider what this signifies. It is this: In every household a means exists, be it ever so small, of appealing through the eye to the higher instincts of the human being: of touching through the natural affections the tenderest feelings of the human heart; or—should the picture be a landscape—by leading the mind to some quiet spot of God's nature, of shedding a spirit of peace over the soul, freeing it awhile from the narrowness of the everyday world, and raising it with thoughts that are the truest, purest, and most beneficial worship of the Creator Himself.

What power have we, who are able through our circumstances, to give thought and time to this our art science? How much might we not do for our poorer brethren by instilling into photography a spirit of pure art, by raising in them a mere reflection even of some of the thoughts and feelings experienced by ourselves when contemplating Nature, or the thoughts and works of the greater artists? Alas! I have no space to treat of the effect of art upon

the human temperament. I may not only say enough to show that the power lies in all branches of pictorial art.

It is my opinion—I grieve to say it—that photography, as at present practised, has a very slight art value, such value as it does possess lying among a very small number of the chief professional men, and among amateurs—the latter's portion of merit being more or less in landscape work; and yet it is my hope some day to see this changed, to see the simplest picture possess at least the merit of correct art—that is to say, as far as the mere mechanical rules are concerned.

Suppose we were to pass through the streets of London as strangers, almost the first thing to catch our attention would be the show-case outside some photographer's studio; at a short distance it appears to be a collection of pretty pictures, and we are filled with delight. Approaching near, the dream is dispelled, it was but distance that lent enchantment to the view. Here is a head carefully vignetted, a clear, good photograph, well finished, save, perhaps, that it has been made unnatural through excessive retouching; there has been no figure to pose, hence composition faults are at their minimum, and, excepting a slight stiffness, the whole is very pleasing.

Here again is a figure standing by a chair—a full length figure; the picture is good, but something in it makes it unpleasant to the eye. A few moments' consideration, and we realize that the complete figure is placed wrongly in the picture, the space on either side wrongly apportioned, the line of the chair in crude composition, out of harmony with the chief subject, adding to the annoyance caused by the other faults.

Then again, we find many a picture of a lady half reclining, half sitting upon a sofa, where the lady herself is but an accessory, the sofa being so crudely introduced, and its lines so inharmoniously composed with those of the subject, that it becomes the centre of attraction, and forces itself upon the eye to the exclusion of the chief object.

This is composition as to lines. For light and shade we generally should find a better state of things, although we rarely see what may be felt and known as a beautiful arrangement, one that draws and keeps our

attention fixed. I have no space here, neither would the time be suitable to attempt a lecture on composition and light and shade, nor do I presume to teach. I desire rather to tell you what I would wish to see, what I would have learned.

Photographers as a class cannot progress, neither can their art thrive by mere technical excellence; that is but a minor detail, though a necessary and very important one. Could the higher arts thrive or be anything with mere excellence in the technicality of coloring? You will all say no! and I reply, neither can our art thrive, I had almost said live, without a vast deal more than technical excellence. The picture is the main, the most important thing, and without a true knowledge of the laws of art there can be no picture worthy of name. Here and there we find work showing that love and tenderness for what is complete and beautiful, from which a deeper knowledge of art so readily springs, but I fear it is only here and there.

How constantly, on the other hand, does one turn away disgusted from pictures, without one jot of feeling; from portraits in which the different parts of the figure express in their attitudes, thoughts and ideas that are at variance?

I would see that deeper knowledge everywhere. I would see such a state of things that when a man or woman asked for a photograph he or she received a picture—a picture only in light and shade, but still a picture as to composition, and complete as a whole.

Have we not art schools? Have we not collections where every one whose path in life is upon the high road of pictorial art may study, and so bring completer knowledge to bear upon their work? It is as easy and profitable to produce what is correct and beautiful as to manufacture what is bad. The process (in photography, at least) is just as cheap.

The public—I do not deny it—are satisfied with what they now receive, because they cannot judge, and because they only wish for a recollection from life of places and people dear to them; and also because "it is only a photograph."

Should the painter's art stand still (and

standing still is recession), because the public are ready and willing to buy the thousands of bad pictures exhibited yearly in our exhibitions? Do not the leaders in the painters' world work on and win authority and renown, and so teach what is right from the place they have won? Do not our galleries of masters' work live as standards which none dare dispute? And why should not we, in our lowly branch of Art, have our standards, our ideals? I have looked abroad in vain, I have hoped in vain; but I can find no soul, no ideal in photography. Every man does as he thinks right, obeys no or few laws, works to no standards.

I have fancied that a dawn of better things was breaking, or about to break, and I hope still.

There is a movement among amateurs to raise standards; let them study, let them strive and labor, and so make the science that has well-nigh reached perfection to be a vehicle of true art; and let us realize what this means. When we think how easily obtainable are photographs by all ranks and classes, and how widespread is their circulation, we can then see how important a thing it is that every photograph be pictorially valuable.

I have said my say; and in so doing have endeavored to keep strictly to my subject, resisting the temptation to stray in the many by-paths opened out. If I have expressed myself too strongly I will be pardoned, for I have but spoken my own thoughts, feelings, and experience, and have but shown that earnestness of wish I would see in all, both professional and amateur—indeed, I acknowledge no distinction, as all are brothers who really love their art, and thus I claim a brother's right to speak my mind. Let others labor, let all labor separately, according to the several leadings, and in unison, to raise and increase the present value of art in photography.—  
*The Conference of the Camera Club.*

### THE HUMOR OF IT.

THE amateur was in England this time. He had focussed upon a picturesque cottage when a cur ran out, barking at him

In his fright, he seized his tripod and ran one of the pointed legs thereof through the body of the dog. The yelps of the wounded brute brought out the owner of the cottage, who, seeing what had happened, cried out, "Oh, dearie me! Why didn't you come hat 'im with the hother hend?"

Amateur: "Why in thunder didn't 'e come hat me with 'is hother hend?"

Now, upon that house is inscribed "Warning! Photographers and other tramps are strongly forbidden to photograph this cottage."

An itinerant artist in this city recently saw seven ladies and two gentlemen stooping over in the form of a semicircle, with their backs toward him. Such a scene of bustle and apparent excitement was a good subject for his new Carbutt "Eclipse" plates, and he went at it. And what do you think the nine were doing—praying? Nein! They were looking at a baby.

A photo young man of the town of Towasset Thought he'd try his new lens on a fam'ly "Composite,"

He first took the mule—the pussy cat he next sot, Then the goat; next himself; and last, Polly Parrot.

Now the adventurer's picture in albums appears With the horns of a goat and an ass's long ears; His whiskers protrude like the cat's do, forsooth, And his nose? like the parrot's, is crooked as truth.

"You must be a good judge of human nature," said a young lady of a scientific turn to a photographer. "Would you mind telling me what you find to be the most common type of men?" "Tintype, ma'am," replied the photographer, "four for twenty-five cents."—*Germanstown Telegraph*.

### SOCIETY GOSSIP.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.—The new rooms of the Society, at No. 1305 Arch Street, were opened to members at the stated meeting on Wednesday evening, April 4th.

Mr. Frederick E. Ives showed some of the results of his experiments in color photography.

Mr. Thomas H. McCollin showed a convenient and effective apparatus for igniting flash light compounds.

At the conversational meeting on Wednesday 18th, the interchange lantern slides from the Cincinnati Camera Club were shown.

The attention of the members was called to the Annual Exhibition of the Society, to be held jointly with the New York and Boston organizations, in the latter city, May 7th to 12th.

Circulars with full information were recently sent to all members of the Society, and it is earnestly desired that special exertions be made by all who can do so to send exhibits. With the wealth of material existing in our midst, Philadelphia should be represented by a display surpassing in quality and number of exhibits all her previous efforts.

Entry blanks, etc., may be obtained by direct correspondence with Mr. Edward F. Wilder, Secretary Boston Camera Club, 50 Bromfield Street, Boston, Mass.; from Mr. John G. Bullock, of the Committee of Arrangements, 528 Arch Street, Philadelphia; or from the Secretary.

ROBERT S. REDFIELD,  
1601 Callowhill Street, Secretary.

St. Louis, April 6, 1888.

Editor PHILADELPHIA PHOTOGRAPHER.

DEAR SIR: The following are the officers of the St. Louis Camera Club for the year ending March 31, 1889, they having been chosen at the regular meeting held on Tuesday, April 3, 1888:

*President*.—Robert E. M. Bain, 515 Pine Street.

*Vice-President*.—Rev. Charles M. Charopin, S. J., St. Louis University.

*Secretary and Treasurer*.—William M. Butler, 2636 Osage Street.

*Executive Committee*.—Eliot C. Jewett, U. S. Assayer; John W. Dunn, 3418 Maramec Street; Charles M. Alexander, 221 Custom House.

*Lantern Slide Committee*.—H. B. Alexander, *Chairman*, St. Louis National Bank; A. P. Erker, 617 Olive Street; Henry Blattner, 220 North Fourth Street.

*House Committee*.—John F. Valló, *Chairman*, 5 Benton Place; Charles H. Holland,

Chief Water Commissioner; Edward Mas-  
sot, 1012 South Fourth Street.

*Membership Committee.*—Walter H. Wil-  
cox, *Chairman*, 217 Olive Street; Charles  
W. Melcher, 811 North Second Street; C.  
Louis Hammerstein, 700 Chestnut Street.

Official inquiries should be directed, in all  
cases, to the proper officers.

WILLIAM M. BUTLER,  
Secretary.

THE Photographic Section of the Brook-  
lyn Academy of Science, at Warner's In-  
stitute, was duly organized on Monday  
evening, March 26th. Temporary officers  
were elected until the first Thursday in  
May, when the annual election of officers  
will take place.

J. W. HOLBROOK, JR.,  
Temporary Secretary.

462 HART STREET, BROOKLYN, N. Y.

AN EXHIBITION IN VIENNA.—We have  
much pleasure in publishing the following:

CLUB DER AMATEUR PHOTOGRAPHEN,  
WALLFISCHGASSE 4, VIENNA, March, 1888.

SIR: The Club of Amateur Photogra-  
phers in Vienna intends celebrating the  
jubilee of H. I. and R. Majesty the Empe-  
ror, by holding an International Exhibition  
at the I. and R. Austrian Museum of Arts  
and Manufactures here. This exhibition,  
which will be open from September 15th  
till October 25th, of this year, will serve to  
show to the public photographs taken by  
amateurs, as also chemicals, apparatus, and  
other photographic requisites. To the various  
clubs and societies of amateur photographers,  
and to firms manufacturing and dealing in  
the above-named articles, has been for-  
warded an invitation to send exhibits.  
Further particulars may be obtained of the  
club on application.

C. SRNA,  
President.  
D. HOFMANN,  
Secretary.

THE Second Annual Photographic Con-  
ference was held at the Society of Arts, 18  
John Street, Adelphi, under the auspices of  
the London Camera Club, Tuesday and  
Wednesday, March 13th and 14th.

*First Day, Tuesday, March 13, 1888.*

2 P. M. Opening of Conference in the  
Theatre, Society of Arts, 18 John Street,

Adelphi, by the President, Captain W. de  
W. Abney.

The following papers were read and dis-  
cussed:

Dr. D. G. Thomson, "The Application  
of Photography to Medicine and Allied  
Sciences."

Mr. H. Trueman Wood, "Applications of  
Photography to Science."

Mr. J. Traill Taylor, "Single Lenses Cor-  
rected for Architecture."

\*Mr. G. S. Waterlow, "Modern Photo-  
graphic Engraving and Printing."

Mr. G. Lindsay Johnson, "A Standard  
System of Weights and Measures."

Mr. W. Willis, "A Recent Improvement  
in Platinotype."

\*Mr. J. F. Mostyn Clarke, "The Present  
Value of Art in Photography."

2 P. M. to 5 P. M. Exhibition of photo-  
graphic apparatus in the Library, Society of  
Arts.

8 P. M. Special lantern slide exhibition in  
the Theatre, Society of Arts.

*Second Day, Wednesday, March 14, 1888.*

10 A. M. Exhibition of apparatus in the  
Library, Society of Arts.

2 P. M. Renewal of conference.

The following papers were read and dis-  
cussed:

Captain Abney, "The Theoretical Aspect  
of Orthochromatic Photography."

Mr. Lyonel Clark, "The Metamorphoses  
of the Silver Image."

Mr. T. Dallmeyer, "On a Further De-  
velopment and Simplification of the Stand-  
ard of Comparative Exposures proposed by  
Dallmeyer."

Sir David Salomons, "On a Ratio Slide."

Mr. W. F. Donkin, "A New Form of  
Sensitometer."

Mr. Andrew Pringle, "Centrifugal Sepa-  
ration in Emulsion-making."

Captain Abney, "Artificial Light in  
Photography."

The meetings were open to ladies.

There was an exhibition of photographs  
by members at the Camera Club Rooms, 21  
Bedford Street, W. C.

The whole affair was a grand success.  
The papers marked \* appear in the pages  
of our current issue; others will follow.

### WORLD'S PHOTOGRAPHY FOCUSSED.

At a meeting of the Berlin Chemical Society last week, one of the professors mentioned a new use or application of photography, which may become of the greatest importance in detecting forgery. The application was based upon the fact that different colors have different effects upon the negative, blue, appearing, for instance, white, and brown almost black. Consequently, where figures or a name had been altered with ink of a different hue from the original, this would be shown in the photographic impression. The professor cited two instances, which happened of late, in which forgery was detected in this way. The photograph showed conclusively that dif-

ferent colored ink had been used, though the naked eye could see no difference, and further investigation proved the supposition correct.

"SCIENTISTS are watching with great interest," says a despatch from Cleveland, Ohio, "the joint experiments of Professors Michelson, of the Case School of Applied Science, and Morley, of Adelbert College, in an effort to determine the feasibility of making the wave lengths of light the ultimate standard of accurate measurement. Previous to their measurements, the limit at which interference of light had been secured was 50,000 wave lengths. On Friday they secured such interference at 250,000, and think the ultimate limit not yet reached."

## Editor's Table.

SEPTEMBER 1885 of this magazine is wanted to make up a file. *Mosaics* 1888 for it.

"KEEP in my advertisement another year. It pays."—S. G. NIXON, the artist and colorist, 813 Arch St., Philadelphia, Pa.

"I THOUGHT I must do without you this year, but the late numbers are so chuck full of information, I must keep on with you and with whatever else helps me so to make good work."—D. BANGS, Minnesota.

THE Buffalo *Express* of March 18th contains a full description of the new "Tucker Building" just erected by DAVID TUCKER on Court Street. A splendid engraving of the front, together with a good portrait of Mr. Tucker also appears. Messrs. Tucker & Butts occupy two great floors for their photo-stock business. Bliss Bros., the well-known commercial photographers, also occupy quarters in the new structure.

DR. ED. LIESEGANG, Düsseldorf, Germany, has favored us with his new illustrated catalogue of apparatus, etc. He is having a great success with his original Aristotype paper, which, we learn, will soon be largely introduced in America. It is already sensitized.

FROM a Texas photographer comes a pretty card backed up by the following good sense:

"We are not making photographs at cut throat prices, but charge a living rate for our productions, and endeavor to make the work worth every cent you pay for it."

He says "it has a good effect."

MR. JAMES LANDY and son were in New York recently. Mr. Landy has been recuperating previous to his attack upon Hiawatha. He was a close student of the libraries and picture collections while in New York, and means to hold on to the Blair Cup unless some more worthy brave wins it from him.

MESSRS. BISHOP BROS., Minneapolis, Minn., have favored us with a number of examples of their work which indicate that there is a likelihood of one of the Convention medals being left in Minneapolis, unless the work sent from elsewhere is of a very high grade. Good careful posing—a special knack with children—and tasteful printing are the characteristics of the pictures before us. A cabinet of three tiny Misses in long "Dolly Varden" dresses is very cute.

"BURNET'S *Art Essays*" came to hand promptly. It certainly is an excellent work, and artists of brush or camera cannot fail to realize much benefit from a careful study of its pages. 'Long

may it wave!"—OVERBECK SISTERS, Cambridge City, Wayne Co., Ind.

THE Suter lens has had a tremendous boom of late. It is one of those cases where justice seems to focus sharply.

MR. JOHN W. BUEHLER, Chicago, Ill., sends us some charming pictures taken by him recently in the wild jungles of Florida. He has been particularly successful in rendering the beauties of the wonderful foliage found there. Sharp focussing, a careful choice of the hour, and patient waiting have all been exercised we know, for we have wrestled with such enchanting difficulties many a time. Our amateur friend is to be congratulated, and he is good enough to say that *Quarter Century* and Burnet's *Essays* have enabled him to do so well after only five months information.

MR. E. E. DRYDEN, Grand Rapids, Mich., has favored us with one of the pretty souvenirs alluded to in our last number. The constitution of the Grand Rapids Camera Club, which was written in round, plain hand, was copied and printed into five divisions and then tied at one corner with a ribbon to a finely designed cover page, the chief point of interest of which is a lovely river view. It is a remarkably tasty affair.

MR. J. INGLIS, 4 Riverside, Rochester, N. Y., is now under full sail manufacturing his new "Argentic" paper. He has sent us some enlargements upon it which are unexcelled and seem to leave nothing to wish for—except color. Such pure whites, and such rich, velvety blacks are rarely found in enlargements. Mr. Inglis will have a fine demand for his paper.

THE proceedings of the Society of Amateur Photographers of New York, for February, printed in pamphlet form, have been received from Messrs. E. & H. T. ANTHONY & Co.

BURNET'S *Essays* seem to be appreciated more highly in England than they are in America. Not because the English love and understand art more than the Americans—we wont admit that—but because they knew of Burnet before we did, and have been hungering for his instructive works to be reproduced, longer than we have. MR. ANDREW PRINGLE, among the kindred spirits, writes us from Bexley Heath, as follows: "Burnet is tip-top and every photographer ought to study it."

THE middle May issue of our magazine will be a surprise to our readers who work out of doors. As a good patent solicitor will show his client advantages and possibilities which he never dreamed of, so do we propose to show the makers of good negatives how they can bring out new beauties by a comparatively new and fascinating process. "Assimilation" will start the new movement on page 241. There is a fine prospect ahead for spring.

A PRETTY BIRTHDAY SOUVENIR.—On February 16th, Master FREDERICK FELLOWS CLARKE, son of Mr. W. H. H. Clarke, St. Louis, Mo., celebrated his fourteenth birthday. About twenty of his companions assembled at the home of his parents, at 2334 Olive St., in the evening, and a very pretty "flash-light" group was made of them. Not a single child moved. This fact, coupled with the graceful arrangement—or, perhaps, the natural formation of the group, has secured an excellent picture and a charming one. Our best congratulations to Master Clarke, and many happy returns.

MR. W. P. BUCHANAN, of Buchanan, Smedley & Bromley, 1030 Arch St., Philadelphia, has lately "beaten the record" with the Violet Lightning Flash Compound. An 8 x 10 picture from him represents Helen, Alice and their year old brother Horace "at play." They are surrounded by all the baby-house accessories (tastefully composed), such as babies in and out of bed; cradles and carriages; cups and saucers and bric-a-brac in profusion, and were caught unawares—unconsciously. Horace was just creeping away from duty when the flash detected him. It is a lovely group and beats all.

MARRIAGE.—Dr. and Mrs. Noble Martin, announce the marriage of their daughter, Clara Elvira, to Sam C. Partridge, at Dutch Flat, California, Thursday, April 5, 1888. Our best congratulations. While we write, the fair bride and her talented husband are en route eastward. They will halt at a number of our western cities and we bespeak every courtesy for them.

REMOVAL.—MR. A. D. FISK, the well-known dealer in photo supplies has removed from No. 17 Murray St., to No. 18 Dey St., where, with new quarters and new goods, he will be better than ever able to meet the wants of his patrons.

WHITE VIGNETTES.—The Wilson-Hood-Cheyney Co. has favored us with several "white vignettes" made directly in the camera at the time

of exposure, by use of the "H. B. H." vignetter. The prints are perfectly and artistically blended and printed as easily as plain pictures.

MR. FRANK YOUNG, of Waterbury, Conn., took several snow views during the late "blizzard" and made blue prints of them on postal cards. They make very tasteful and interesting souvenirs of the "greatest snow on earth" in March, 1888.

MR. O. T. DEWHURST, Secretary of the Lynn (Mass.) Camera Club, made a very fine picture of four negro minstrels, by the flash light. All were on a broad grin and with eyes akimbo. It is very funny and technically excellent.

*Quarter Century* in AUSTRALIA.—"I thought *Photographics* was splendid, but if I'm not mistaken this will be even better."—G. F. JENKINSON, Adelaide.

A MODEL daughter is Miss ANNIE M. EVERITT, of Grant's Pass, Oregon. She sent to us for *Quarter Century* "for my father's birthday present." Her father, E. F. Everitt, Esq., is one of our old subscribers.

PICTURE mats are becoming quite "the fashion" again. A beautiful and endless variety is made by Mr. H. STENGEL, No. 710 Broadway. Mr. Stengel also makes masks for the Rockwood Triplex picture.

*Printing Upon Albumen Paper* is the title of a work issued by Dr. E. A. JUST the well-known manufacturer of albumen paper in Vienna. It has been translated entire for the PHILADELPHIA PHOTOGRAPHER, and it will appear as "a serial story" of the first class in our pages, beginning with the next issue.

"MORE THAN I EXPECTED."—MR. A. PIERCE, Cavendish, Vt., writes: "*Quarter Century* is very satisfactory—more than I expected."

LOVELY PICTURES FROM SOUTH AMERICA.—MR. J. MURPHY, one of our old acquaintances in Philadelphia and now head printer with Messrs. Chute & Brooks, Montevideo, S. A., has favored us with a large number of albumen paper prints that make us blush for some of our American printers. Such lovely tones and such delicate and tasteful printing we have not seen for many a long day. They are of charming subjects and from splendid negatives too, but as prints they seem to have secured every bit of quality and beauty there was to be had. Moreover, they

are unmounted and, therefore, none of their charm is due to after-finish or burnishing. We congratulate Mr. Murphy on retaining his cunning as a printer, for so many years of service. We hope to choose from them for an "Our Picture" mosaics presently.

STAMP PORTRAITS.—MR. H. A. HYATT, St. Louis, informs us that he has purchased the stamp portrait patents, both for the stamps and for the apparatus, and that he proposes to push the sale of both, and also to defend the patents against infringement. Mr. Hyatt is one of the most enterprising dealers in America, and will no doubt make the stamp portrait very popular. He says he is getting orders from all sections of the country. His free circulars give all the particulars.

MR. SAMUEL A. MCCONNELL, Cody, O., sends us a number of his circulars, used for pushing his enlarging and crayon business. Such "push" pays.

A NEW SOUVENIR.—Time—only three months of it—has rendered portions of our New Year souvenir useless. We have just issued a new and revised edition which we will be glad to send to all who have not received it. Some advantageous special offers of books and back volumes are made on page four of the new souvenir cover.

"NEARLY TWO HUNDRED YEARS of Book Illustrating in America," was the subject of an illustrated lecture by Mr. W. LEWIS FRASER, Art Manager of the Century Co., on Wednesday evening March 28th, at the Grolier Club. It was a very instructive and enjoyable occasion. The illustrations from the old books were very quaint and crude, but we were carried on and on until the splendid work of the Century staff was reached.

Mr. Fraser paid a handsome tribute to our art in stating that it had revolutionized the method of book illustration, and that by its help the artist was enabled to see the "feeling" of his work kept by the wood engraver, as it was rarely done when the drawings were made directly upon wood.

Any photographer can learn soon to practice photo-engraving, at a very small expense for an outfit and make a great deal of business out of it.

MR. CHAS. A. ZIMMERMANN and lady, of St. Paul, returned from Europe on Monday, April 9th. They were met in New York by their

brother Mr. E. Zimmermann and his wife, much to their surprise. When the brothers called upon us they said they were making great preparations for the Minneapolis exhibition. They expected a large attendance and were preparing a splendid exhibit.

*Wide Awake*, published by D. Lothrop & Co., Boston, should be in every photo parlor for the children all, from seven to seventy, like to read it. Here is a little "black and white" picture from it:

#### THE DIFFERENCE.

"I think it very queer," she said,

"And so does Jack,

That sunshine makes some things grow white,

And some grow black.

"I tried to bleach myself," she said,

"And so did Jack;

The sheets you spread were white as snow,

But *we*—turned black."

—H. R. Hudson, in *April Wide Awake*.

OBITUARY.—We record with much regret the demise of another old personal friend and a warm patron of our art. JOSEPH ZENTMAYER, once the greatest of American opticians, is dead. He was ill for over a year. He was foremost among the microscopical experts of this country and one of the best known in the scientific world. He was born on March 27, 1826, in Manheim, Germany, and was apprenticed, when a boy, to an optician of that town. He soon became very proficient, and on coming to this country in 1848, leaving Germany on account of political troubles there, he soon made a reputation in his calling. Embarking in business for himself a few years later he, in 1865, invented the Zentmayer condensing photographic lens, which was considered the greatest discovery in that line. In 1869 his ability was recognized by President Grant, who appointed him one of the United States Commission to Iowa to observe the great eclipse of that year. The Franklin Institute of this city awarded him a silver medal and the Elliott crescent gold medal, in the year 1874, for the best scientific inventions of the decade. For the sub-stage microscope, invented in 1876, by the use of which opaque objects could be viewed with greater ease than by any other instrument, he received a gold medal at the Centennial Exhibition and also a gold medal at Paris in 1878. He was elected a member of the American Association for the Advancement of Science in 1884, and also belonged, at the time of his death, to the Franklin Institute, the Aca-

demy of Natural Sciences, the Philadelphia Photographing Society, Philadelphia Philosophical Society, the Young Mænerchor, the Turn Verein, and the German Society. He was also a trustee of the German Hospital. The invention of the mechanical finger for arranging diatomes is credited to him. He leaves a wife, four sons and three daughters. Two of the sons carry on their father's old business; one is a physician and the fourth still a student.

His lectures on lenses, delivered at the Franklin Institute several years ago, were never equalled and are his legacy to photography. They have been placed on record entire, in the notes of *Quarter Century*. For a quarter of a century we knew Mr. Zentmayer intimately. He was as amiable as he was able.

THE *Photographic Times*, March 30th was embellished by one of the full plates from Burnet's *Essays*. (Plate three of "Composition.") It was accompanied by a leading article explaining the plate, entitled "The Advantages of Art Education," by Edward L. Wilson, editor of the PHILADELPHIA PHOTOGRAPHER.

EDITION EIGHTH.—Part four of the illustrated catalogue of Messrs. W. H. WALMSLEY & Co., 1016 Chestnut St., Philadelphia, has been received. It contains many important additions. It is a model of neatness and careful compilation, and will interest any worker in photography. The "standard formulæ" at the back give the catalogue a triple value.

A LARGE invoice of Burnet's *Essays* and *Quarter Century* went to Mr. J. J. ATKINSON, Liverpool, England, since our last issue. Of it *The Journal of the London Camera Club* says: "A perusal of this work cannot fail to be of service to the photographer who desires to be something of an artist in addition. The illustrations are admirable and the work is produced in a manner that does credit to Mr. Wilson." And since, Messrs. Marion & Co., the veteran London stock-dealers, have ordered 50 copies each of Burnet's *Essays* and *Quarter Century*.

A NEW and original work on retouching the negative and the positive, has just been published by C. KRAUS, Düsseldorf, Germany. The author is our esteemed colleague Dr. Ed. Liesegang, of Düsseldorf. It is illustrated by several elaborate drawings of the anatomy of the human face and skull by Prof. H. Mücke, and by the

best illustrations of the use of our American Air-Brush that have yet been issued. Alas! that so valuable a work should be a sealed letter to so many of our readers because it is in German.

DR. HIGGINS promises the first instalment of his paper soon. A treat is in store.

MR. F. W. GUERIN will amuse us with a couplet in "Our Picture," next time.

MR. A. J. TREAT's valued art paper, with some Pacific Coast illustrations will form part of our both May issues.

MR. W. H. WALMSLEY's second paper on Photo-micrography has been delayed until our next on account of a painful illness brought on by his devotion to the cause, in lecturing in New York on a very stormy night. It will not deteriorate by keeping.

THE three Phenixes—Messrs. Falk, Eastman Co., and Photogravure Co., are all recovered from their fires and are doing more splendidly than ever on their individual ashes.

MR. C. G. BUSCH, Claremont, N. H., has favored us with some fine "sugar-snow" views, accompanied by several pounds of the new crop of maple sugar. They are all excellent.

MR. E. J. KILDARE, Guatemala, C. A., sends us his usual pleasant greeting. He says, "I have figured on your list since the seventies and you shall not drop me." *Quarter Century* and other works are on the way to him.

MR. WILKINSON's work on *Photo-engraving*, *Photo-etching*, and *Photo-lithography* will be ready the last of April. A revised table of the contents is given in the advertisement, which shows much enlargement and much improvement over the English edition. It will reach well on to two hundred pages and be bound in a fine cover with illustrations complete. We shall review it in our next. A great deal of interest is expressed in it. It will open up an extended field for our art in a comparatively new direction.

THE interest in photographic publications does not in the slightest abate, but rather increases as the months go by. Our "Pages from Burnet," published last week, has excited an unusual activity among the readers of photographic books to procure the valuable art pub-

lication, from which it was reproduced. Dr. Wilson surely deserves the thanks of all photographers for putting it within their reach to buy the book now for \$4.00, which a year or two ago could not be obtained for \$200. Our readers will also hail with pleasure the announcement that "Photographic Printing Methods" is to have a companion by its own popular author. "The Photographic Negative," announced last week, will certainly be no less widely read than is the favorite book to which it is a fitting companion.—*Photo Times*.

HAVE you asked MR. GRAY to send you a list of the prices of his Periscope?

A NOVELTY IN PHOTOGRAPHY.—"Wide awake and fast asleep." MR. LEON FAVRE, a French photographer of wide experience, well known to many of our readers, has applied for a patent for quite a novelty in the line of photographic portraits. It is a portrait which exhibits different characteristics of expression or emotion; that is, one view grave, another gay; one with eyes closed as if asleep, another with eyes wide open, all apparently in one picture. The different varieties of expression are obtained by looking at it alternately by reflected light and by transmitted light. For instance, looking down upon it the subject may appear to be asleep, the eyes closed; but holding it up to the light and looking through it the eyes are open and the expression possibly changed to a smile. This little affair has been very much admired by those who have seen it. As Mr. Favre does not speak English he has joined with Mr. G. G. Rockwood in bringing out his invention. Room rights for galleries outside of the big cities of New York, Chicago, St. Louis, etc., are sold for ten dollars. This includes a specimen, instructions, and a license under the patent. In the large cities the room rights are fifteen dollars each, while an arrangement may be made for the exclusive control of it in towns where so desired. Parties interested in this novelty may address Mr. Rockwood, 17 Union Square. Mr. Rockwood says, "my own customers have taken warm interest in this little novelty, and I think it will be a good deal admired. One novel way of showing it is to have it put in the end of a little box in which there is no light, and a little pasteboard shutter, which, by clock work, or automatically, will let on the light from behind or cut it off. This invention has an infinite number of applications and I commend it to the fraternity both in their own interest and in that of Mr. Favre."

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. ~~We~~ We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

**MAKE OUT YOUR OWN BILL,** and remit cash with your advertisements, or they will not be inserted.

FOR SALE.—In Littleton, N. H., a first-class gallery, well equipped for large and small work, also large view trade. Terms easy. Apply to  
E. S. HALL,  
306 Main Street, Buffalo, N. Y.

CRAYON PORTRAITS, free hand drawing, \$15.00 and upwards, for the trade.

J. P. DECKER,  
405 Fourth ave., New York.  
Crayon Artist for Photographers.

WANTED.—A good, capable man can have a steady situation all the year around, if he is reliable. I would like him chiefly for retouching, but also one who can work crayon, and when I am out take my place at operating.

JOHN D. STRUNK,  
730 Penn Street, Reading, Pa.

FOR SALE OR RENT.—Ferrotypes gallery, Main Street, Jackson, Mich. Address,  
TAFT, Photographer, Buffalo, N. Y.

WANTED.—A first-class operator and retoucher (single man preferred) can secure a good, permanent situation at once, by addressing the undersigned. Must be strictly sober, industrious, and careful workman. Do not answer unless you can come up to the requirements. No Sunday work.

C. W. MOTES,  
34 Whitehall St., Atlanta, Ga.

PHOTOGRAPHERS doing business in Central New York have their attention called to the new Retouching Bureau recently opened in Utica. The gentlemen in charge are artists of ability who guarantee first-class work. Their prices are reasonable, and they respectfully invite photographers to write for particulars or send negatives for retouching. Coloring also done for the trade.

H. S. KELLER & C. C. JARVIS,  
12 Tibbit's Block, Utica, N. Y.

Get Wilson's "Quarter Century in Photography," \$4.00.

## STAMP PORTRAITS!

THE ONLY AND ORIGINAL.

Perforated and Gummed like postage stamps, and the only Stamp Portraits covered by Letters Patent. Issued July 12, 1887.

Having purchased from Kuhn Bros., the Letters Patent covering the manufacture of *Stamp Portraits*, also on the *Apparatus for making the same*, we hereby notify and caution all infringers that legal action will be taken to protect said letters patent.

Send for trade price list.

No less than one hundred made from one subject; for larger orders special prices will be made.



MINETTE STAMP PHOTOS.

*Taken from any Cabinet, or Card, or Small Photograph.*

Made in sheets, perforated and gummed, four times larger than the "Stamp Photo." No less than two dozen from one subject made.

Address all orders to

H. A. HYATT,  
N. E. Cor. Eighth and Locust Sts.,  
St. Louis, Mo.

Territorial Rights and Complete Outfits for sale.

## CARBUTT'S ECLIPSE PLATES.

BALTIMORE, April 9, 1888.

MR. CARBUTT:

The Eclipse Plates came to hand all right, and I find, as with all rapid plates, they require more care. I think they are the quickest plates I ever worked. \_\_\_\_\_'s 40 not excepted. Please send following, 2 dozen 14 x 17; 2 dozen 11 x 14; 1 dozen 10 x 12; all "Eclipse."

Yours truly,  
GEO. E. MUELLER.

## BUY BURNET.



### THERE IS NO DOUBT ABOUT IT

that the "H. B. H." VIGNETTER is going to revolutionize photographic printing.

Just think of it, photographers, you can make Vignettes with either *White or Tinted Backgrounds*, with as much facility as you can a plain print.

They cost

TWELVE DOLLARS,

it is true, but the question is not—can you afford to buy one? but can you afford to do without one?

They can be had through any of the dealers, or by sending direct to

WILSON-

HOOD-

CHEYNEY Co.,

(Limited),

Manufacturers' Agents.

A RARE CHANCE.—Being desirous of going abroad, I wish to dispose of my gallery. It is one of the finest and best equipped in the Northwest. Centrally located, opposite the Post Office and the largest dry goods house, in fact, the best locality for doing a first-class local and transient business.

The studio is on two floors 20 x 80, has two skylights—top and side—fourteen feet square, facing north. About 35,000 negatives which yield quite a handsome revenue annually.

Will also dispose of my house, lot, barn, horse and carriage, etc., situated within twenty squares of the gallery in the best resident portion of the city. Population about 200,000.

Those meaning business will please direct for particulars

HARRY S. SUTTER,  
Milwaukee, Wis.

WANTED, first-class retoucher on large or small negatives. Address, stating salary,

P. H. ROSE,  
Providence, R. I.

### FOR SALE.

1 8 x 10 View Camera.....	\$5 00
1 5 x 8 Camera with Stereo Attachment	5 00
1 20 x 25 Glass Bath Holder, wood outside.....	15 00
1 Sleigh.....	4 00
1 Circular Rustic Tree Seat.....	4 00
1 Wall and Gate Posts.....	7 00
1 Background with Tree.....	6 00
1 8 x 9 Interior Background.....	10 00
1 Daisy Glass Foreground.....	6 00
1 9 x 10 New Landscape Background, Tree in the Middle.....	10 00
1 7 x 8 Background Skating Rink, new	6 00
1 4 x 5 Background.....	3 00
1 8 x 10 Background, Shore and Water View.....	10 00
Small Plain Grounds, each.....	1 00
8 x 10 Printing Frames, each.....	25
8 x 10 Old Portrait Negatives, not retouched, each.....	2
5 x 8 Old Portrait Negatives, not retouched, each.....	1
1 11 x 14 View Box, extra fine.....	50 00
1 4 x 5 Fitz Lens.....	3 00
1 Pair Short Focus Zentmayer Lenses...	5 00
1 Pair New York Optical Stereos.....	6 00
1 6½ x 8½ Darlot Lens.....	6 00
1 11 x 14 Fitz Lens.....	10 00

View Lenses from \$3 00 each, upwards.

PACH BROS.,

841 Broadway, N. Y.

FOR SALE.—A direct printing solar camera, 14 inch condenser and 25 x 30 box, at a bargain. Address

HARDY, Photo Artist,  
Boston, Mass.

A "LIFE-SIZE" lens wanted, one that will cut sharp and clear, a full life-size bust picture. A good instrument will be purchased or traded for other useful articles. Address

PACH BROS.,  
Broadway and 13th St., New York.

### TO PHOTOGRAPHIC MERCHANTS.

NEW YORK, September 1, 1887.

GENTLEMEN: We have now opened a *New York Depot* for the benefit of our Eastern patrons. From this depot orders will be delivered to any New York Freight, Express, or Steamboat office. Address M. A. SEED DRY PLATE Co., No. 2 Bond St., New York. A. R. HUISKAMP, Manager.

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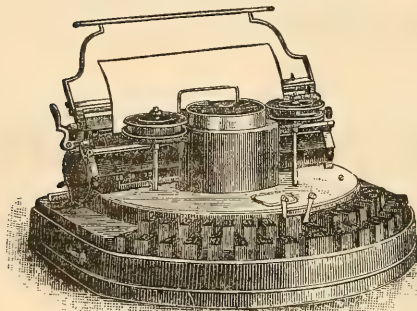
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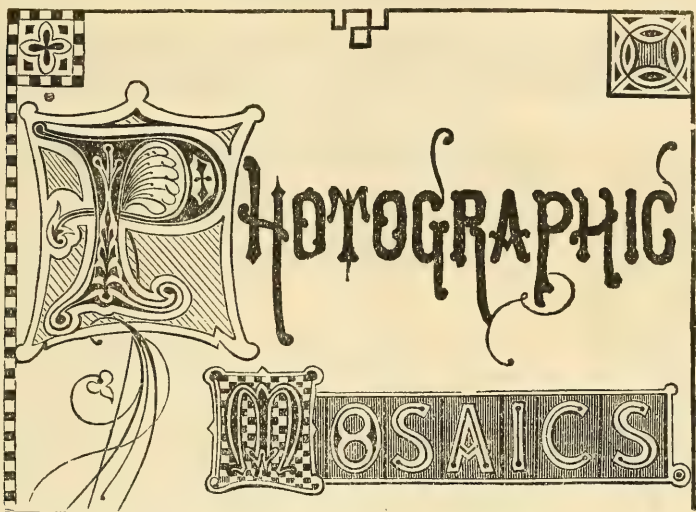
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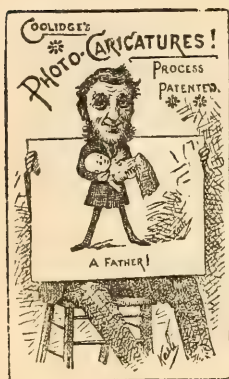
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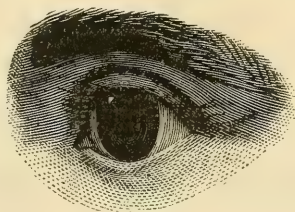
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| <i>E.</i> Preparation of the Glass.    | <i>T.</i> Photography Outside.               |
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[OVER.]

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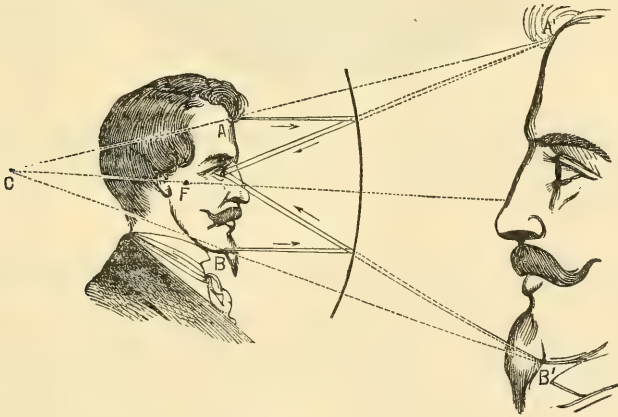
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[OVER.]

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In making the above claim that this work is a complete text book of the art of photography, the author has not overstepped the mark, for we have seen nothing to compare with it in clearness and attention to details and manipulations. The author's easy style is already well known to those interested in the subject, and goes a long distance toward making the "*Quarter Century*" an interesting volume, entirely independent of its large store of information. After an outline history of the subject, the theory of photography is treated of ; then follow the subjects of light, the camera and lenses, the diaphragm, artistic principles, indoor and outdoor work, chemicals needed, negative making, printing, photo-engraving, slide making, etc., etc., with a host of details worked in under the proper headings. Isochromatic photography is treated of in a separate chapter, and its special value in certain classes of work noted. The more prominent features of the work are the chapters on lenses, art principles and the making of paper and film negatives. The treatment of this last subject will be found of especial service to the travelling amateur, who is often deterred from adopting the use of flexible negatives simply because he can find little reliable information concerning their peculiarities. We know of several cases of amateur enthusiasts in the art who have tried the "films," and finally returned to the old stand-by glass plates, because of difficulty in handling the later process. By the light of such information as Mr. Wilson has supplied, this difficulty largely disappears, and the process is simplified by giving a detailed understanding of it. The arrangement of the book is exceptional in one respect that greatly increases its value for general work. The main text is supplemented by foot notes in smaller type, comprising quotations from all our leading writers on the subject, and in many cases containing original methods that have not yet become generally known to photographers. This collection Mr. Wilson has been in an excellent position to make, as editor of the *Philadelphia Photographer*, and the readers of the "*Quarter Century*" will be more than repaid by a close comparison of the methods presented.—*Iron*.

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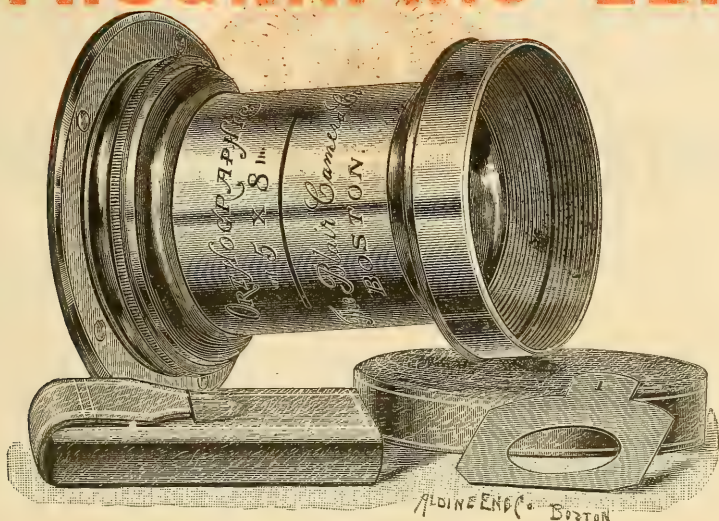
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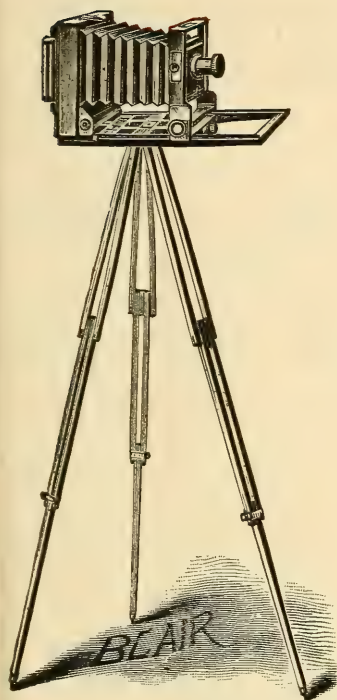
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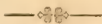
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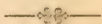
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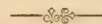
"HUB BRAND" HARD RUBBER TRAYS.



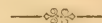
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WILL. H. LEIGH.

(Signed)

Truly yours,

1616. Wishing you continued success.

see to it that no one draws a focus on it, and runs away, like the party did with my 5 B No. find it just takes the dilapidated linen from off the shrubbery. I am delighted with it, and will etc., I always feel confident of success, and since I received the 6 B some ten days ago, I do without it. When I get calls to go quite a distance from home to make large groups, views, DEAR SIR: After three years' experience with the Suter Lens, I don't know what I would

ALLEN BROS.

BEAVER FALLS, PA., November 9, 1887.

COPY OF LETTER FROM W. H. LEIGH TO MESSRS ALLEN BROS.,  
DETROIT, MICH.

W. KNOWLTON.

(Signed)

Respectfully,

I have had the lens for nearly two years, but never exposed it on a head in my gallery until within the last month, using it entirely for outdoor work. I shall continue its use under my light, shelving one of the best "D ——" extra 4 x 4 portrait lenses, that cost four times as much.

welcome to it, and this statement with it. sharp from the end of the chin to the back hair over the ear. If it is of any use to you, you are 16 stop, in five seconds (poor light and slow plate at that). You will see that it is *microscopically* only what you see daily, viz., a 7½ inch head, made with a No. 5 B Suter Lens, with the No. GENTLEMEN: I send you by to-day's mail a curiosity, that is, it is such to me; to you it may

ALLEN BROS.

New York, November 23, 1887.

COPY OF LETTER FROM W. KNOWLTON, Photographer, Studio, 335 Fourth Ave.,  
New York, to Messrs. ALLEN BROS., Detroit, Mich.

WILL. A. TRIPLETT.

(Signed)

Truly yours,

I expect to make some very fine work with my No. 6.

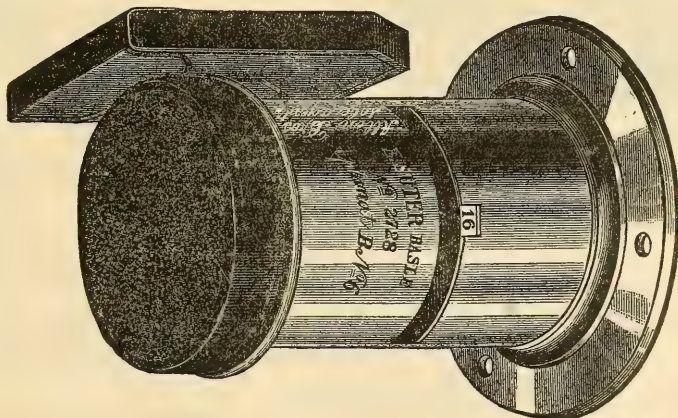
the No. 6 B and return you the No. 4 A by to-day's express. alongside of a No. 6 ——. The latter lens does no such work as either of the Suters. I keep

DEAR SIR: The No. 6 B and 4 A Suter Lenses you sent me have been carefully tested

MESSRS. ALLEN BROS.

BLUFFTON, OHIO, November 7, 1887.

COPY OF LETTER FROM WM. A. TRIPLETT TO MESSRS ALLEN BROS.,  
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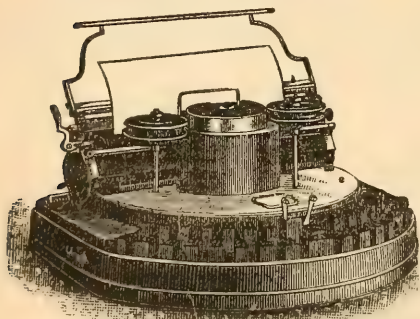
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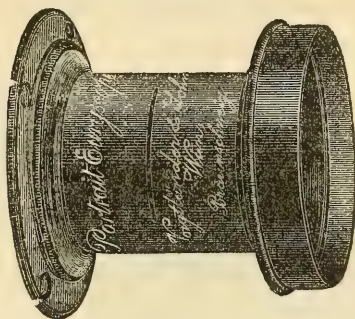
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The front and back combinations being perfectly symmetrical, superior marginal definition and perfectly even illumination of the plate can be obtained, and, with the same length of focus as heretofore, a larger field is covered and the size of the image increased, the resulting picture being absolutely free from distortion.

The **PORTRAIT-EURYSCOPIES** are divided into two series as regards their working rapidity. The first corresponds in ratio of aperture to focal length to the Portrait-Lenses of normal speed, but excels them in covering capacity, depth of focus and powers of definition.

The second series—and these will be found the most useful—have an increased length of focus, and are consequently less rapid, but sufficiently quick-working for all ordinary portrait work in the studio. Possessing too, greater covering capacity (increased size of field), and greater depth of focus than the first series, this second series is specially adapted to taking groups and full-length figures in short studios where the regular Euryscopes, on account of their longer focus, may not be available. They are also excellent for instantaneous work, inasmuch as the flare characterizing portrait-lenses, when used out of doors, does not exist. In point of fact, this construction of the **PORTRAIT-EURYSCOPIES** will fill a gap in the series of existing portrait-lenses and as they are lighter and shapelier than the old long-focus Portrait Objectives, they will become great favorites. Each lens is provided with central stops.

We would state, furthermore, that no change will be made in the present style of Euryscope lenses. Send for price list which also contains the official report of the Photographic Society of Vienna on the above lenses.

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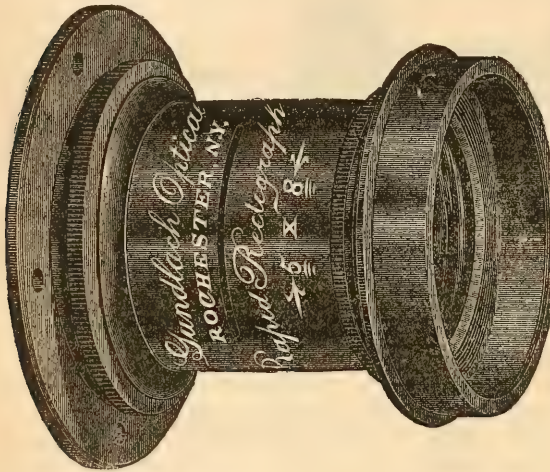
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1	4 x 5	3 1/4 x 4 1/4	1	5 5/8	6 1/2	\$20 00
2	5 x 8	4 x 6	1 1/4	7 1/2	8	30 00
3	6 1/2 x 8 1/2	5 x 8	1 1/2	9 1/4	10	38 00
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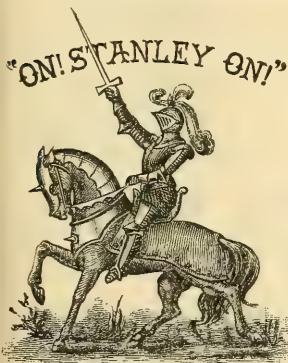
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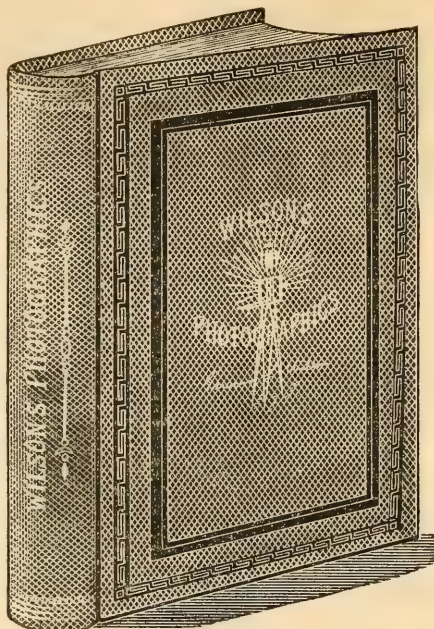
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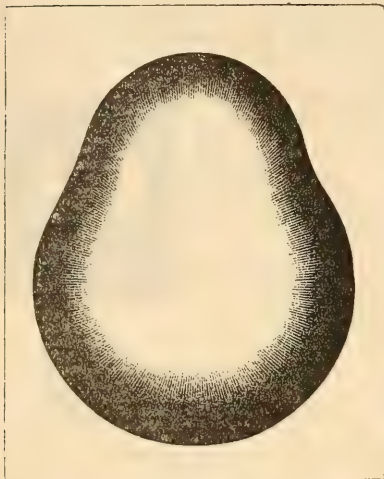
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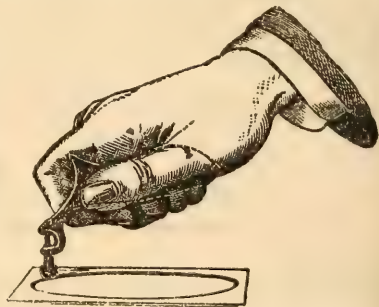
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"AT LAST WE ARE ALONE!"

"I WANT MA!"

THE

# Philadelphia Photographer.

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## PRACTICAL PHOTOGRAPHY FULLY EXPLAINED.

BY DR. J. H. JANEWAY, U. S. A.

### PART I.

As these papers are addressed to beginners, or those who have felt the effect of the craze, as it is fashionable now-a-days to call it, and who desire to press forward in the beautiful art science, I have the sincere hope that by the perusal of them the tyro will be enabled to steer clear of the many pitfalls, and escape many of the numerous disappointments and failures that constantly surround and befall the inexperienced in photography. Therefore I will not feel aggrieved if the professional or the well-advanced amateur passes them by without reading—and thus possibly save much valuable time.

What do I want? And what shall I buy? are questions that have frequently been asked me, and I know of no better way of trying to show a beginner how he can make a photograph which will receive the approbation of his friends and which will be at the same time a source of constant gratification to himself, than by first answering these questions and thus gradually lead him through many a slough of despair to the perfection of the beautiful.

Therefore, first, you will want a camera complete. Box, landscape lens, tripod, focussing cloth, and focussing glass.

One or more double plate holders or dark slides.

Two or three ebonite trays.

Two glass graduate measures—1 to 2

ounces, and 1 to 1 drachm—or a glass tube marked in minims to 60 or 1 drachm.

One set of scales and weights capable of weighing from 1 grain to 4 or 6 ounces.

Several wide-mouth glass or rubber stoppered bottles, and as many narrow mouthed ones.

One rack for drying your developed and fixed plate.

One flat and one deep printing frame.

A package of good dry plates.

Some ready sensitized paper, and also blue or ferro-prussiate paper.

The chemicals that you will need will depend, in a great measure, upon your choice of developer—should it be the alkaline pyro, you will need at least

1 ounce of Schering's pyrogallic acid.

2 ounces of carbonate of soda—crystal (washing soda).

2 ounces of carbonate of potash—crystal.

2 ounces of sulphite of soda—crystal.

1 ounce of bromide of soda or potash—crystal.

1 pound of alum—crystal.

1 pound of hyposulphite of soda—crystal.

15 grains of liquid chloride of gold.

1 ounce of either tungstate or acetate of soda.

1 or two 8x10 porcelain dishes for toning.

1 mortar and pestle (Wedgewood).

From time to time you will want other things, but until the need arrives I would not buy them.

Second: You should buy a *good* landscape camera—box, light, but well made—one that

opens and closes easily—neither an expensive one, for you may soon tire of the whole business and then it will be a dead loss to you; nor a cheap affair which will soon go to pieces, leak, or something else, and thus also become worthless to you; and by all means avoid purchasing a second-hand one, for reasons that will soon become obvious to you. It will be time enough after you have, to some extent, mastered the art science, and become, as it were, insensibly infatuated with it—which the great majority do—and know how to handle the camera properly, for you to indulge in a more pretentious and expensive article. Even after you have so gratified yourself, you will find yourself using the old one for many an odd job—for it comes in very handy oftentimes when you least expect it, and then you have a certain kind of love for it—for it has been with you in many a struggle, disappointment, and success. Then you can convert it into an enlarging camera, if needs be, with but little expense or trouble.

If you will think a moment you will discover the great similarity of the camera to the human eye. Both have their imperfections, and these imperfections are corrected in the same manner. The light passes through the lens of the camera and is received in a dark chamber and spreads upon the focussing screen or ground glass, just as it is spread upon the retina of the eye. The imperfections of the lens are corrected by diaphragms or stops—the same corrections are made in the eye by the iris—and the bellows of the camera takes the place of the muscles of accommodation of the eye, and enables us to get a sharp picture, portrayed upon the ground glass, and so on.

There are a great many cameras now made by different houses that are really good and reasonable in price. You will want one—compact, light-tight—that has a vertical shifting front, a single, or preferably a double, swing-back, a good rubber, or better still, leather bellows, and a folding bed that can be made perfectly rigid when in use. A 5 x 8 size is a very good and convenient size for a beginner, though I prefer a 5 x 7, as I think that it is a better shape and makes the most artistic picture of the two. Some, and our English friends par-

ticularly, are just now advising a much smaller size—for ease in transportation, less weight, and the facility with which the negative produced can be enlarged. These advantages claimed may be all strictly true and feasible for the advanced amateur with plenty of time and money. But I think that a 4 x 5, or even smaller, oftentimes misleads the beginner from the size of the resultant picture, and the condensing of the details into a small space. And then, again, the beginner has enough to contend with without throwing in a sense of littleness when comparing his with large and perhaps not so good pictures.

*Lenses.*—With the exception of strictly architectural subjects, I think that the single achromatic lens is without exception the best for the beginner, and even for the more advanced.

For quickness, depth of focus, and flatness of field, a first-class single lens can hardly be excelled by the double; of course, the latter will excel it in rectilinearity.

The single, when properly provided with a large aperture and a good set of stops, can be used for time, or so-called instantaneous work and for portraiture. I have seen some exquisite bits of landscape work and some very good portraits made by the Waterbury "B" lens in the hands of the young amateur. And it has lately been demonstrated that a negative of an architectural view, taken by a single view lens, can be enlarged with the same lens and give a rectilinear photograph. It is necessary, however, that the lens should cover the plate sharp to its edges without a stop. After a while you will need a long focus, rapid rectilinear, and the indispensable wide angle. But before purchasing them you should thoroughly understand the construction of the different lenses, so that no one can palm off a portrait combination for a wide angle on you. I know of no better books for this and other points of needed information than Wilson's *Photographics* or *Quarter Century*. They are marvels in their completeness and compactness.

The *tripod* next demands our attention. Do not buy one of those fairy concerns—so light that the very uncapping of the lens will cause the camera to vibrate, or a gentle

breeze to shake it. Always use a strong, almost inflexible, but not too heavy a tripod made of well-seasoned wood. It is better to make your arms ache a little in carrying it, than to find one of your much-prized negatives with double outlines or a tantalizing haziness spread over what otherwise would have been a choice picture. See to it also that the iron spikes at the end of the legs are well pointed, and that the screw that holds the camera to the tripod is so made that it will not fall out of the tripod head.

*Focussing Cloth.*—It may be well enough to have the usual rubber focussing cloth furnished with the camera to protect the same in wet or damp weather, or to protect the plate holders from broad sunshine. But the objections to the rubber are, that as furnished they are not large enough, crack easily, thus becoming good strainers for the light, and very hot in summer. The best focussing cloths are made of black cotton-velvet, and should be sufficiently large to cover the camera and the observer's head, and lap well under the bed of the camera, thus insuring perfect exclusion of all the surrounding light. You cannot focus sharp if light strikes the ground-glass from any other direction than through the lens. The focussing cloth should also have double strings at each corner, to tie to the stand when needful, and a slit in one side for the lens to pass through. Thus fixed you may laugh at the wind.

The focussing glass that I would recommend would be either a Darlot or a C. C. H. And to adjust it to your eye seek out some dirt speck on a window pane, place the glass over it, and move the eye piece up and down till the edges of the speck become very sharp to your eye; now clamp the eye piece, and it is always ready for use, and you thus save time and annoyance by having the glass focussed sharp at all times.

*Plate Holders.*—I would advise that you purchase at first, the double plate holders, and see that they fit accurately the space occupied by the ground-glass, and that the distance of the plate when in the holder, and the slide withdrawn from the front board of the camera, is exactly the same as

the ground-glass when in position. A fraction of an inch either way will mar your picture.

And now we come to the first and hardest lesson that the beginner has to learn—"patience." You will have to get used to your tools before you begin to work, if you desire to become a skilled workman. After choosing your camera, test it, see that it does not leak—*i. e.*, let in the slightest pencil of light. Expose the camera to as much strong sunshine as possible—remove the ground-glass and keep the cap on the lens—then cover your head and just enough of the camera to keep out the surrounding light with the focussing cloth, and look in. It is a good plan to shut both eyes when you cover your head, in order that your eyes may be accustomed to darkness a moment or two before you use them.

If you cannot discover the slightest trace of light after a careful and prolonged examination of all the sides and front board, especially near the screws which hold the flange of the lens, then extend the bellows to its fullest extent, and repeat the operation, but take a longer time at it. Do not take the assertion of the seller that it is all right. See for yourself. If the result of this inspection is the same as in the first trial you may rest assured that the camera is light-tight. Now remove the cloth and examine the inside with the aid of the surrounding light, and see that there are no bright or uncovered spots—no points of brass screws sticking through the wood—but that all is of a dead black inside; then you may be certain that the camera is a safe one, and you can take it home and begin—not to take pictures—but to get familiar with your tools.

The old Romans had a saying, "*Festina lenti*"—"Hasten slowly." And in order to achieve success in the beautiful art, the beginner must follow strictly the above advice. Nothing chills one's ardor quicker than continued failures and multiplied disappointments, and such are sure to be the case if you attempt to take pictures of a fast trotting horse or portraits of your family before you know what you have to do.

You must turn your attention to more important things, and by so doing you will

avoid many a mistake and bitter disappointment.

You must learn to observe, to study, to think, and in your spare time read the best that you can procure on the subject; by so doing you will be enabled to overcome the many difficulties that beset your way as they arise. There is a story told of an old Scotchman who had waited and watched three years to get a picture of a spot as described by Sir Walter Scott, and thought that he would get it that day; but added, in his canny Scotch way, "But its no just ready yet." Suffice it to say, his patience was rewarded by a wonderful picture. This story I use to illustrate my idea of "Hasten slowly."

Lock up your dry plates and your chemicals until you have a dark-room fitted up, when you can handle them. As yet you have no use for them.

But we will return to the camera, and take our first lesson of how to use it. Fasten it to the tripod, and be sure that it is firmly fixed, spread out the legs of the tripod and be certain that one is under the lens and the others equidistant to the first; never have one of the legs pointing toward you, for it will always be in the way, and is liable to be knocked at the most trying time. See that the camera is level—this you can do with your eye or with the aid of a vest-pocket spirit level, which costs but a trifle; should one side of the camera be lower than the other, your picture will suffer in proportion.

As a rule, have the middle of the ground-glass horizontally at such a height that you will neither have to stand on tip-toe, or break your back by bending, whilst focussing. And now we have arrived at that important point.

*Focussing.*—The camera being in position point it toward some out-door object—a high chimney or a building at no great distance, with the sun behind you, not directly, and shining obliquely upon the object. Uncap the lens and throw the focussing cloth over the camera, taking care that it does not cover the lens, thrust your head under the cloth, and with one hand gather it around the bed of the camera. The cloth thus used prevents the

light from behind or underneath from falling upon the ground-glass, and allows the image formed by the lens to be distinctly seen, which would not be the case if no cloth were used. With the other hand begin to draw the camera out, or force the lens forward, if the camera is so constructed, keeping your eyes at least ten inches from the ground-glass all the time. Don't try to look through the ground-glass, but upon it, and you will perceive the picture portrayed upon the ground-glass. By continuing slowly to draw the camera toward you the image becomes more distinct, sharper and sharper, and when most distinct, as well at the sides as the centre, you have obtained the right focus. It is well now to clamp the camera whilst you make a thorough examination of the top, sides, and bottom of your ground-glass, for one side may not be as sharp as the centre, or both sides may be a bit blurred. A slight movement either forward or backward of the camera, or the introduction of a stop, will produce the desired effect.

Take the largest stop furnished with your lens, and note the effect upon the image. The use of the diaphragms or stops is two-fold—one to extend the area of sharp definition to the extreme edges, another is to extend the range of sharpness from a near to a distant object. If the largest stop fails to give you the required sharpness at the edges, try another, and so on, until the sides are well and sufficiently defined. Study the effects produced upon your ground-glass by these various manipulations, and think. Repeat the same operations upon some other object differently lighted, and note the effect—think. Continue to repeat until you can quickly obtain the right focus. A little patience and thought here will save you many a minute later on. In landscape work focus sharp on the middle distance, as it is called, first, and then, by the aid of a stop, and sometimes by the swing-back, have all parts sharply brought out.

I have mentioned the vertical shifting front and swing-back as being necessary to a good camera. The vertical shifting front board, as its name denotes, admits of the lens being moved up and down for the purpose of regulating the amount of sky and

foreground to be taken into the picture, and also enabling one to avoid tilting the camera in many cases. The swing-back enables the photographer to tilt his camera upward, if he fails to take in the front of a large building, high trees, or any object that from its height cannot be admitted upon the ground-glass, without producing what is called the "distortion of convergence." In a building, the sides of which previous to the tilting were vertical, are now seen to converge, like an inverted  $\Delta$ . The swing back enables you to bring the ground glass strictly vertical; so that it is once more brought into parallelism with the vertical plane of the building, and the distortion has disappeared.

An easy way to determine whether the back is vertical is to have a small ball of metal attached to a silken thread, which, when hung at the edge of the ground-glass, acts as a plumb line, and enables you to bring the back quickly and accurately into a correct position. The plate is now standing obliquely to the axis of the lens, the lower portion is further away from it than the top, and hence they cannot be equally sharp at the same time; but the insertion of a smaller stop will quickly remedy the discrepancy. In landscape work the swing-back oftentimes comes in very handy, especially when the foreground appears hazy from being out of focus, whilst the distance and mid-distance are all right. Reverse the position of the ground-glass, and let the top be further away from the lens than the bottom, and you will have both the foreground and the distance equally sharp.

*The Dark-room.*—As a rule, and, I might say, invariably, the beginner is content, until he knows better by experience, with a dark-room much too small, and when he discovers his deficiency is unable to correct it. A room smaller than 8 by 10 I believe to be objectionable in very many, if not all respects, both to the operator and the operations therein conducted. It cannot be kept in a state of cleanliness, which is absolutely indispensable for first-class work. It cannot be properly ventilated, and at an equable temperature at all times, to say nothing of the bottles and the various other articles necessary in the

proper development of and care of the plates. The dark-room should always be kept warm, never, if possible, below 60° Fahr., and this, in cold weather, can always be done by one of the many coal-oil stoves made expressly for heating purposes.

The entrance to the dark-room should be through two doors nearly opposite to each other, and opening differently, with a partial partition between them, thus cutting off all chance of light entering the room whilst at work, and yet allowing a thorough cleaning of the room when necessary. Have your shelves arranged around the room, and of a sufficient number to enable you to have a place for everything, and thereby everything in its place. The top shelves should be for your stock solutions, and a careful watch should be kept on them, that there is enough and to spare at all times. An upward glance will tell you this. The middle shelves to be occupied with convenient size bottles of the various dilute solutions for everyday use, and they should be kept filled from the stock solutions on the upper shelves; but keep the solutions of different chemicals apart. A smaller shelf about the eye level, above the table, should hold your graduate measures and stirring rods. Upon the table itself should be arranged only the dishes, trays, etc., in actual use at the time. Trays, large and small, to be kept in racks beneath the table, arranged according to their uses, and should be properly labelled. The sink should be at right angles to the table, at least 36 by 22 inches, and supplied with a good drain pipe. If possible, it should be of iron porcelain lined, but a good one can be made of sufficiently thick wood lined with heavy sheet copper or zinc. The plunge to the drain pipe should fit tightly. On either side of the sink a shelf slightly inclined should be fastened to hold trays, etc., and let the shelf on the further side from the table be always devoted to the fixing bath, and for no other purpose, thus keeping the danger of contamination by hypo at the minimum. If there be no regular supply of water by the ordinary pipe, a small keg will have to be placed sufficiently high, but not too high, to give a good force to the flow of water, which may be directed to any

spot desired, by attaching a rubber tube to the spigot in the keg, and the flow regulated entirely by a spring slip. But should you have no room available in your house to convert into a dark-room this should not cause you to be discouraged. Adopt the suggestions of Mr. A. D. Fisk, in *Mosaics* of 1888, and utilize the kitchen.

*Illumination of the Dark-room.*—The dark-room should be dark only to the actinic blue and violet rays of light; but illuminated enough by the non-actinic yellow and red rays to enable you to see everything that has to be seen without strain to the eyes, and, in fact, pleasant to the operator. Discard, if you value your eyesight in future years, the ruby glass or fabric that most of the books of instruction and the plate-makers insist upon, and choose a much more pleasant medium for illumination and one that will be equally safe. I know that it is considered conservative to stick to the ruby; but conservatism is oftentimes a misnomer for tyranny. Should your dark-room have one or more windows, block out all but one or two panes with some black material of sufficient thickness to exclude all light. Cut out at least three thicknesses of tissue paper of the sunflower tint, not canary, so that they exactly cover the glass. Place these on another pane of glass, and fit it in the frame of the sash, and in close contact with the uncovered pane, and secure it by tacks or other means. This method will give you a safe light and plenty of it.

The reason for not fastening the paper to the glass is that in time it may become discolored or spotted and has to be removed. If you prefer to, work at night; and many do so, some from choice, and some from necessity, and there are some very important reasons why working at night or by artificial illumination is preferable to daylight. The most important one is, that the intensity of daylight illumination fluctuates enormously. It is not the same in quantity two days in succession, or two hours; and during the winter months of but short duration. As soon as the light becomes dim the operator has to suspend his work. Other reasons against the use of daylight, in development especially will readily suggest themselves to the reader.

Your artificial illumination may be procured by the use of oil, candles, kerosene, gas, or electricity, and always gives the same amount of light—that is for each kind used—and the operator is not hampered by the time of day as in natural illumination. Having a steady and fixed amount of light, you are better able to estimate the condition of the negative in the process of development or fixation; and thus you much sooner become expert and surer of your work, for you have less to contend with. Your lantern should be of good size and with plenty of air-supply from the bottom, and a locomotive funnel for the air-draught. It should have three sides that are in constant use, and the fourth can be used for contact printing, lighting, and turning the lamp, etc. I formerly advocated placing a glass of cathedral green, or one colored by the aniline dye new green, in front of the ruby glass found in all lanterns; but after many experiments, I have settled down to the use of the sunflower tissue between two pieces of glass in the lantern. For the front glass that points directly to the developing tray, use three thicknesses; for the two other sides two thicknesses will be enough, and you have a delightful light, bright enough to see everything, and yet safe.

The lamp, if of kerosene, should have a flat burner of  $1\frac{1}{2}$  inches in width at least, which will give you sufficient light, especially if you have an ordinary reflector behind it. This lantern can be made of wood, having a double top and bottom, and the holes for inlet and outlet of air, though of some size, are not to be superimposed on each other. With very sensitive plates it is well to be some distance away from the lantern, and even to have an additional screen of the tissue, which can be removed after the developer has been some time on the plate, and development fairly begun. This precaution is also necessary if the ruby glass or fabric is used.

When away from home, and you desire to change plates, two thicknesses of post-office paper rolled into a cone and placed over a candle or small kerosene lamp, is all that you will require for that purpose, and you can dispense with those miserable little travelling concerns which give more smell

and smoke than light. Of course, no light from the outside should enter the room when changing plates.

Before leaving the dark-room for another subject, it may be well to call your attention to the fact that the smallest trace of white light in the dark-room will fog the plates, and therefore it is especially necessary that a most careful and thorough examination be made to discover the enemy. If it is present, every aperture and chink, no matter how small or apparently insignificant, admitting white light, must be stopped up with putty, white lead, or some other substance. It may be necessary to hang a thick curtain of dark material before the door. If you have but one door, you must have the curtain; for remember, the only illumination of your dark-room allowed, is that producing non-actinic light.

(To be continued.)

## PHOTOGRAPHIC PERSPECTIVE.

BY A. C. CAMPBELL,  
Bridgeport, Conn.

NOTWITHSTANDING that there exist many excellent photographic manuals,\* in which this subject is treated in a masterly style, there are, no doubt, many among our practical photographers and amateurs who have but a slight knowledge of linear perspective in its relation to photography, and it is my hope that the following remarks touching on the subject may help some at least to give a reasonable answer to the query, "Does a wide angle rectilinear lens distort?"

It is a conclusion hastily arrived at when one examines the exaggerated perspective of a "wide angle" picture that the peculiar twisted and distorted images of objects lying near the margins or corners are due to defective construction of the objective, but an explanation of some of the peculiarities of perspective and its relation to the photographic image may dispel this illusion, and help us to trace the defects above referred to to their true cause.

According to Webster, "Perspective is the

art of making such a representation of an object upon a *plane surface* as shall present precisely the same appearance as the object itself would present to the eye situated at a particular point."

To conceive this definition more clearly, suppose a transparent plane, say a sheet of glass, to be placed between the eye and the object we wish to represent, and that straight lines be drawn from every visible point in the object to the eye. Further, suppose that in passing through our transparent planes these lines leave their traces impressed thereon, then these traces will collectively form on the glass a complete representation of the object in perspective.

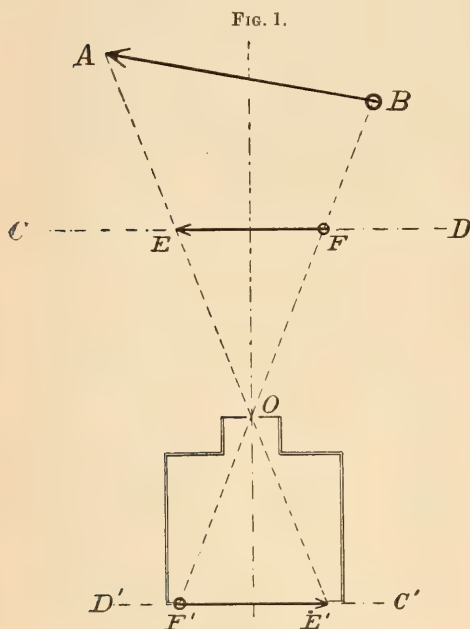
As an art, perspective is divided into two parts; the first, called linear perspective, treats the subject from a purely mathematical standpoint; the second is called *aëreal perspective*, and treats of the relation of the lights and shades, as influenced by distance, etc. It is only with the first part, however, that we have to do in the present instance; and as we now understand the theory, let us reduce it to practice in a simple experiment, and thereby become still more familiar with the principles involved.

In front of the centre of one of our window-panes, a foot or so distant from the surface of the glass, let a card be fixed, in which is a small hole, say an eighth of an inch in diameter. Now if you place your eye at this hole the landscape outside may, of course, be seen through the intervening glass, and it is possible to draw upon this glass the outlines of the objects, which would give a perspective picture exactly fulfilling the conditions of Webster's definition. But remember the stipulation. In looking at this drawing when finished *the eye must occupy the exact position relative to the picture that it did when the outlines were traced upon the glass*, as only from this point of view can the picture present a natural perspective to the eye. Viewed from any other point the perspective is incorrect, and we may get an impression that certain objects outlined thereon are distorted, while they are *not*, if viewed from the proper standpoint.

In the diagram, Fig. 1, let *AB* be an object which we wish to picture on the trans-

\* Quarter Century, PHILADELPHIA PHOTOGRAPHER, and Lea's Manual.

parent plane  $CD$ , and  $O$  the point at which the eye of the observer is to be placed. Straight lines ( $AO, BO$ ) drawn from  $A$  and  $B$  to the eye at  $O$  will intersect the picture plane at  $E$  and  $F$ , and give thereon, as the perspective of the object  $AB$ , the image  $EF$ .



It is apparent from this diagram that if the plane  $CD$ , while being kept parallel with its original position, is brought nearer to the eye at  $O$ , the resulting picture will be smaller, and that the further away the plane is placed from the observer the larger the picture becomes—but at every distance the *perspective* is the same.

Now suppose a rectilinear lens, whose focal distance is the same as the distance of  $O$  from the picture plane  $CD$ , to be placed at  $O$ , and a screen,  $C'D'$ , to be located behind the lens, parallel to  $CD$ , as in a camera, then the rays of light coming from all the visible points of the object, will, after passing through the lens, form the inverted image  $F'E'$  of our object upon the screen; which image is a counterpart, line for line, of that which we saw on the transparent plane when viewing our object from the point  $O$ . We had a picture in *true perspec-*

*tive* on the transparent plane, and we have the same picture accurately delineated on the screen,  $C'D'$ , by the rectilinear lens.

The visual angle of the human eye is comparatively small, which fact very naturally influences an observer while looking at a picture to draw the view near to the eyes, if small, and to hold it further off, if large; provided it is desired to get the effect of the entire picture at a glance.

A  $6\frac{1}{2} \times 8\frac{1}{2}$  picture is easily and naturally viewed when placed about one foot from the eyes; therefore, if said picture be taken with a 12-inch focus lens, the whole effect will be harmonious, and the perspective, natural. If, however, the same view be taken with a 6-inch focus lens, and inspected from a distance of 12 inches, we would get very ill effects, especially near the margins. (See Fig. 3.) Exaggerated perspective, or distortion, would result.

Such a picture to appear correct should be viewed at 6-inches distance, which is too much of a task for a normal eye, as the visual angle must, in that case, embrace  $100^\circ$ , while to cover  $60^\circ$  taxes the eye sufficiently. The longer the focus of the lens used, or the less the angle of view included in a picture, the more latitude the observer is allowed in placing his eyes to inspect it.

A clear idea of what an angle of sixty degrees in a picture means may be had if you will place yourself before an open window standing back from it a distance nearly equal to its width. From this position you are enabled to see the complete landscape outside without turning your head. The angle of the view at the horizon would be about sixty degrees. Now step forward one-half of the distance between yourself and the window and try to inspect the view; you will find that a great number of new objects have appeared in your picture at its right and left as well as in the foreground, and that in order to look at them all, you will be obliged to turn your head to the right and left. This would be about the picture you would get with a wide-angle or 100 degree lens.

Let us make a little study of some of the effects produced on our picture plane when a large angle of view is included; and, as an example of a subject which would show

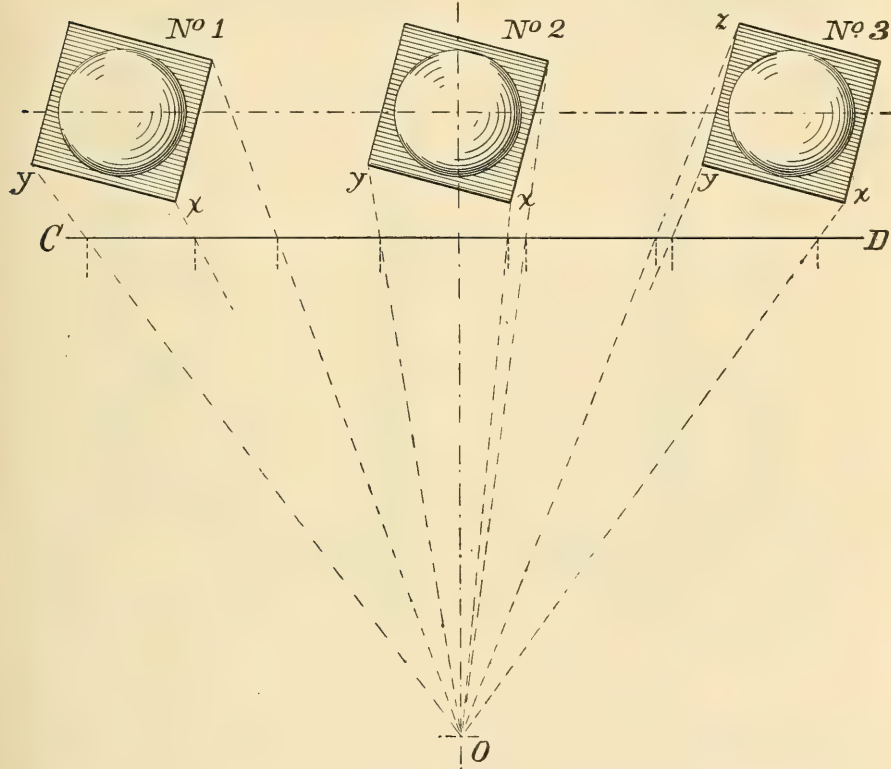
the peculiarities of such exaggerated perspective most clearly I would suggest three vertical columns each having a cubical base, the shafts being composed of cylinders and spheres.

Place these columns side by side in a straight line with their bases so turned that in plan they would stand about as shown in Fig. 2, that is, with the right hand corner  $x$  of the bases nearer the picture plane  $CD$ , than the left hand corner  $y$ .

photographers (the perspective here illustrated is such as would result from the use of a 6" focus, 100 degree lens on an 8 x 10 plate).

Now, this picture is drawn with great care and in principle is mathematically correct. It is identical with a picture which would result from the use of a wide-angle lens of proper "focus" situated at the point of view we selected. It may be hard to believe that this is correct perspective, but

FIG. 2.



In the construction of an exact perspective drawing of such a group let the point of sight be chosen opposite the centre of the central column at  $O$ , and at such a distance from the subject as to produce a wide-picture on the picture plane  $C, D$ . The peculiarities of the resulting perspective are strikingly illustrated in the accompanying drawing, Fig. 3, and to explain them would no doubt stagger many of our experienced

if you could place your eye as near it as was the point of sight, all of the apparent distortion would disappear—but this is impossible. Thus it is with all wide-angle pictures taken with a short focus lens; you cannot place your eye close enough to the views to make them look *natural*.

Let us examine this drawing. The sphere  $A$  at the centre of column No 2 appears as a true circle, while its counterpart, at  $E$  and

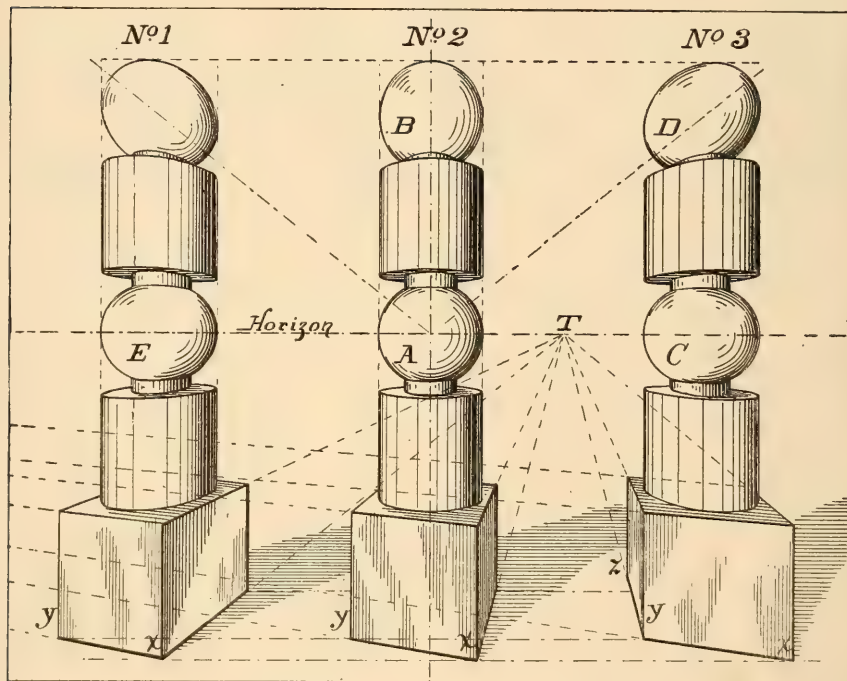
*C* of columns Nos. 1 and 3, is expanded from right to left, distorting it into an ellipse. The cylindrical portion of column No. 2 is shown as of the same diameter as the central sphere *A*, while the same size columns Nos. 1 and 3 are apparently of a larger diameter, in fact, equal to the longest diameter of the ellipses *E* and *C*. Note here a curious fact. If we should see in any picture two objects which we knew to be of equal size represented of different sizes we intuitively con-

columns Nos. 1 and 3 where they are shown as elongated diagonally.

*All of the spheres represented on our perspective plane must appear as ellipses whose major axis is radial from the centre of the picture except the central one, which will be a circle.*

Lastly, notice the effect of having a rectangular figure (the base of column No. 3) placed at the extreme corner of our picture when in the position shown, that is, with

FIG. 3.



ceive the smaller one to be farthest off. Is it not difficult then to reconcile ourselves to the fact that columns Nos. 1 and 3 which are known to be further from the point of sight than column No. 2 must be represented as if of larger diameter? Yet, as I have before stated, the drawing is in strict accordance with the laws of perspective.

Observe next that the sphere *B* at the top of the central column is represented as an ellipse, its longest diameter being in the direction of the length of the column. This distortion of spheres is more striking when we glance at those surmounting the

the corner *x* nearer the picture plane than *y*, yet further from the observer. The upper and lower lines of the surface *xy* will vanish in the horizon in a point at the left of the picture, and the upper and lower lines of the surface *yz* will also vanish to the left of the figure meeting in the horizon at *T*; hence, the peculiar distorted appearance of the cubical base. The perspective of the bases of columns Nos. 1 and 2 is not so unnatural and might pass, since the vanishing points are not on the same but on opposite sides of the respective figures.

A very striking practical illustration of

the effect last mentioned was shown me recently in a landscape photograph, and it was this that induced me to investigate the subject and to write the results for the benefit of those who may have been puzzled to

use, which so often results in the production of pictures violent in perspective and, therefore, distorted in detail near the margins. In selecting a lens for a given size plate the best perspective will result from

FIG. 4.

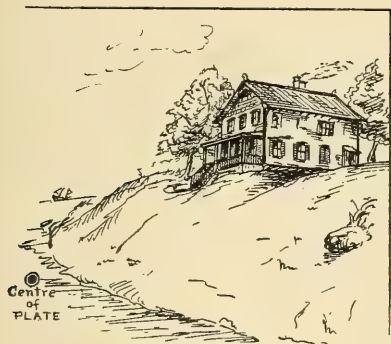
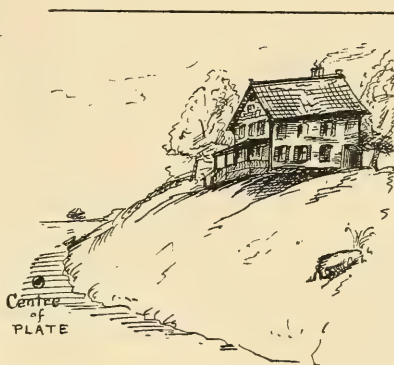


FIG. 5.



explain like phenomenon. The photograph referred to measured  $6\frac{1}{2} \times 8\frac{1}{2}$  and was taken with a 6" focus wide-angle rectilinear lens. Among the objects represented was a house perched up on a bluff so that it occupied the upper right-hand corner of the view. The house was situated similar to the base of column No. 3 in Fig. 2, that is, so that the visible corner furthest to the right was nearest the picture plane.

If I had been asked, before seeing the picture, to sketch that house as I would expect to see it when so situated and viewed from the standpoint chosen, I would, in all probability have outlined it as in Fig. 4, but I would have missed it, for, as a matter of fact, the photograph, perfectly correct as regards perspective, revealed it about as in Fig. 5. My first impulse was to affirm that the effect was due to distortion produced by the wide-angle lens, but the truth gradually dawned on me, and having solved the problem for myself thought that some of your readers might be thankful for the explanation which I have endeavored to give in the foregoing article. In conclusion, I wish to emphasize what has been said by abler writers, that though a wide-angle rectilinear lens is an excellent and indispensable instrument, great care should be exercised to prevent its indiscriminate

the use of one whose equivalent focus is *not* less than the diagonal of the plate. It may be greater, to advantage.

## FIXING AFTER DEVELOPMENT.

BY THOMAS PRAY, JR.

Fix is a little word, but it opens a range of inquiry very wide and very often as well. The process would be simple, if only all plates were alike and developed to some density, but ideas are so radically different, and plates are unlike, and the handling which is given to the plates varies so much that the user is puzzled. Platemakers sometimes, we are afraid, adopt the ideas of some friend, to whom they entrust the development and fixation in order to save time and expense of careful experiment, and so send out for the professional and amateur a formula not fitted to the plate, in many instances to which it is very likely to be subjected, and so give the irreverent amateurs many and oft-repeated "Oh dears?"

For three years my own struggles with the problem gave me many an hour's hard work, that in justice to my health and strength should have been devoted to rest, and spoiled many a prospective negative; but it has also increased my stock of expe-

rience, the results of which shall be given to inquirers, for their profit, if they follow.

The resultant negative is as complete when developed as ever it can be, but will not bear exposure to the light for printing from, and so must pass some other chemical solution or process, which has two objects to attain; one is to clear the white bromo-iodide of silver which has not been acted on by the light out of and from that which has been acted on, and through this effect the fixing, so that exposure to the light will not affect any further reaction or chemical change. This whole process is called fixing.

The dry plate may require one or another strength of solution to clear the plate or fix it, and for several reasons. The developer is so raised in strength and consequently in time of action, as well as density and detail, owing to all the changes of light and exposure that the plate may be yellow or brown, or some other shade of one or the other color; but in addition to this there is another and a most important difference in the emulsions from which different plates are made, that has on the one hand the elements of safety in not so readily frilling, and as the opposite, slow clearing and the possibilities of increasing the strength of the fixing solution to such an extent that trouble may come to plates not fully developed or of slow development, or of a rather underexposure; and for that reason not so plucky as they should be if fully exposed and well developed to proper density, for the reduction after developing is a factor that must be taken into account and thoroughly learned for each make of plate.

The two elements referred to above are chrome alum and iodine, sometimes both, in the emulsion. Chrome alum is used to increase or hasten the "setting" of the emulsion or to prevent frilling; in either case, if properly used it is an advantage, but if used in excess, or with poor gelatine or to help tone up an emulsion rather thin or "a little off," then we will have trouble in films sliding off the glass or in different ways in the fixing, and in either case by a decided increase of uncertainty in fixing. If iodine is properly used in the emulsion it gives pluck to the negative and increases the latitude of exposure and brings out a finer

modulation in the detail especially if iodides and bromides are in good proportions. All reference here is made to landscape or view work, not to portraits in a studio, for it requires a far better plate for outside work, from which to get good negatives, than for portraits. Another trouble we meet with is in badly prepared or curdled emulsion spread on the plate which does not show or become interesting until the plate is exposed and fixed, and then it usually occurs right in the worst part of the plate and does not disappear without extra trouble, frequently not at all.

These are only a part of the uncertainties in the fixing, but they are certain to be with us in quite too frequent occurrence for our peace of mind or success for any length of time.

The only chemicals used for fixing now are hyposulphite of soda and cyanide of potassium, in dilute solution the last for collodion negatives and sometimes for dry plates, not necessarily, however, for two good reasons: First. It is a deadly poison, fatal to human life by absorption or by the mouth. Second. Hyposulphite of soda is not a poison, not so energetic, not so apt to reduce the negative to a piece of clear glass and quite as certain in its action, more uniform and requires much less attention, hence its use and general adoption by many collodion workers and almost generally by dry-plate users. Sodii hyposulphitis, as it is known in the U. S. Pharmacopœa, is also known as thiosulphate of sodium. We are used to it as hyposulphite of soda, and, in true American, chopped-off style, as hypo. It is an important item in many industries, being used by thousands in paper mills each year to absorb the chlorine in the pulp after being bleached with chloride of lime while in the rags of which paper is made. The chemical symbol is as varied as the uses of the article.  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ ; this means that hyposulphite of soda is made up of 2 atoms of soda, 3 of oxygen, 5 of water, and 2 of sulphur. Soluble in  $1\frac{1}{2}$  parts of water and will keep indefinitely if not kept too warm, in which case it recrystallizes on evaporation of water. The hypo should be kept in well closed bottles. It is usually allowed to lie around in a box or otherwise,

and in some operating-rooms that have come under my notice. The dirtier it gets, the more old pieces of glass, corks, nails, etc., it gathers, "the longer it lasts." From a lack of schoolboy chemistry hypo is not taken care of, or kept clean, while it should be both. Chemically, hypo is a curious fellow. If exposed to a heat of about that of boiling water, 212° F. the  $H_2O$  goes out and it becomes dry, and if put in a flame makes a curious, intense yellow light; and the hypo as we know it and use it has the power, in solution with water, of dissolving out all the salts of silver except the sulphide and such as have been acted on by the light. It does not act on iodide of potassium but iodine, and we who use it for clearing and fixing clear out the unchanged iodide or bromide of silver from that which has been first acted on by admission of rays of light and then reduced by some oxidizing agent as pyrogallie acid, sulphate of iron, of potassium, or any other substance as developer. This purpose it answers quickly, thoroughly, and perfectly, if it is handled rightly, but what is right?

Here is an extract from a letter from an amateur. "I find so great a variation in the relative proportions as given by various authors and makers of plates that it is hard to tell what is right. I fancy some *one* is right and the rest are all wrong." He then quotes saturated solution: 1:8 Carbutt, 1:3 Seed, 1:4 Vogel, 1:6 Sinclair, 1:8 Stanley, 1:10 Guerin, of St. Louis, 1:2 $\frac{3}{4}$  Lea, 1:8 Anthony. "Some say put in alum, others say it makes a new chemical combination and spoils the whole thing." Harmony in such a case is simply impossible. Lea and Seed are evidently believers in fast fixation and the plates on which they work may stand that; my own experience leads me to use my regular bath with Seed, but will try the stronger bath at first opportunity. Stanley and Anthony are practically the same, except the Anthony transparency plate which comes up finer with weak hypo than a strong bath, and gives results second to no plate for that purpose. As to the lack of harmony in the formulæ given, it is only another proof of a great variation in the plates or the ideas of the makers. It is hardly a possible thing that

there can exist quite so great a difference in the required strength of solution to clean out all the unchanged iodide or bromide of silver. Yet the use of iodine and chrome alum as noted, will make some difference, as will also the way in which the gélatine is cooked or not cooked. In my own work I have used for three or four years a solution slightly less than 5 of water to 1 of hypo, made up by putting 12 ounces of hypo in a 64 ounce bottle, and filling it with hot water, and then when dissolved add carbonate of soda or aqua ammonia (q. s.) to make it very certainly but slightly alkaline. With my own work, which is purely scientific or for amusement, I have used Carbutt, Cramer, Ripley, Anthony's transparency (the only exception, half strength), Forbes, both red and blue, Ripley, Seed, Eastman's, Stanley's, and some others, not one of which has ever failed to respond in quality and reasonable time, from any fault of the hypo. The bath, if too strong or too weak will not do as well; it can be so strong that it will practically not touch the silver, but a solution about as directed will do all the required work if kept reasonably cool and thrown away the moment it approaches to a "yellow color" but it must be *slightly alkaline*.

The alum bath question has been so recently and fully gone over that the inquirer should read recent issues of the PHILADELPHIA PHOTOGRAPHER\* for full light on that question, or get the numbers from the Editor if he, the inquirer, is not a subscriber.

A good plate will stand the bath above given, and with previous treatment; see *Mosaics*, 1888, pp. 55-60, and December and January numbers of the PHILADELPHIA PHOTOGRAPHER for details *in extenso*.

If amateurs would thoroughly and carefully try one plate after another and refuse to change, and shut up on the snap shutter craze, it would soon compel platemakers and stockdealers to whistle and to make and sell plates adapted to use; but as it is, platemakers have been driven into the "snap" craze and it is now difficult to get a slow plate and it is as difficult to do good work on a fast plate. Some of the No. 25's

\* Current volume, p. 52.

are as capricious in hypo as the oft-quoted Miss of 17. The blame for this lies about evenly with amateurs, or a very few and cranky ones, and the stockdealers, or some of them, in catering after the snap-shot-hit-em-anyhow; and the bulk of amateurs, take any sort of plates, do not depend on their judgment, and then swear about the plates and their makers instead of their way. Take a silver plate, No. 15, 16, or 17 Warnecke, put in lots of bromide of brains, heaps of patience, use good sense, measure and weigh, and then profit, and you will soon gain experience that will give you elegant negatives and much joy—in results.

### PRACTICAL POINTS FROM THE STUDIO.

In the *Correspondenz* C. B. asks what albumen paper copies, which are to be enamelled, should be retouched with? The inquirer states that he has a young assistant who spent some time in France and who tells him that there such pictures are retouched with a fluid called "Coagulin," and which was there purchasable in the trade. The gentleman then asks whether this is known to the editor, and whether he (the editor) can furnish him with it, or can give him advice where to obtain it.

The editor replies, that the fluid referred to is a solution of dried ox-gall, and can be bought at the apothecary's shop. Moreover, it would be well first to flow thin raw collodion over the retouched picture.

GOLD BATHS FOR CHLOR. SILVER GELATINE PAPER.—*For Blue-black Tones.*—

No. 1.	
Water . . . .	500 c. cm.
Sulpho Cyan-ammonium . .	10 g.

No. 2.	
Water . . . .	500 c. cm.
Phosphate of Soda . . . .	12 g.

Both solutions can be kept an unlimited time.

Before using, one should mix

No. 1 . . . .	100 c. cm.
No. 2 . . . .	100 "
Chlor. Gold Solution 10 p.c.	10 "

This bath can be used several times, if after the toning, or a day before the next toning, some chlor. gold solution is added.

*For Warm Brown Tones.*—

No. 1.	
Water . . . .	750 c. cm.
Sulpho Cyan-ammonium . .	15 g.

No. 2.	
Water . . . .	100 c. cm.
Chlor. Gold . . . .	1 g.

This bath is to be mixed a day before the toning. If it colors too quickly, it should be diluted with water.

*For Cold Tones.*—To the above bath 1 g. fixing soda dissolved in a little water should be added shortly before using.

PHOTOLITHOGRAPHY WITH HALF TONE.—Herr E. Ammann, who sends us a very prettily executed print (landscape with figures), tells us of the production of the same. The plate was developed very carefully in order to obtain a delicate and yet a strong negative. The half-tone solution should so act that first a sheet of paper with oblique parallel and cross-lines should be provided, and a diminished picture made from this net of lines. From this negative a positive was copied upon chlor. silver collodion, the layer of the latter stripped off and directly transferred upon the landscape negative, so that finally a negative is obtained with direct grain. This was transferred in the usual way upon stone and printed.

The print sent to us gives ample proof of the value of this method.—*Technique of Photography.*

A PHOTOGRAPHER'S lens is more discerning than the naked eye. A recent photograph of a figure-painting, by an American artist, shows that a woman's gown was first painted a hue and texture very different from that finally chosen, the underlying brushwork appearing plainly in the photograph, though not seen by the most attentive observer of the original picture. In like manner photography reveals stars that to the human eye are not distinguishable from nebulous matter.

**THOU KNOWEST.\***

Thou knowest all the heart pangs,  
 The secret pain within;  
 The longing for a purer life,  
 The Sabbath rest from sin.  
 Thou knowest all the anguish  
 Breathed in each stifled moan,  
 The cup of sorrow's bitterness  
 The soul must drain alone.

Thou knowest why the heart-strings  
 Wait for some master hand  
 Whose slightest touch the passing breath  
 Would fully understand,  
 And make responsive melody,  
 Where now but broken chords  
 Sweep thro' the deeps, like requiem  
 O'er Norway's wild fiords.

Thou knowest why the sensitive plate,  
 In the spirit's camera set,  
 Receives each impress like a flash  
 Of mystic light, and yet  
 The reverse image is obscure—  
 Its form doth not appear  
 Until the bath of tears brings forth  
 Thro' darkness outlines clear.

Thou knowest why the soul was filled  
 With ideals to be crushed—  
 Why forms so bright at touch of clay  
 Should crumble into dust;  
 Why such bright visions shrined within  
 Should vanish at a word,  
 From those whose angel whisperings  
 Mayhap have never heard.

Thou knowest what blossoms need the sun  
 What flowers bloom in shade;  
 What lives develop best in gloom,  
 Where other lives would fade!  
 Thou know'st! ah! what other though  
 Can bring the soul such bliss,  
 Amid the labyrinthine path  
 Of life so strange as this?

\* We consider these beautiful lines worthy of insertion in any magazine, but we give them place here as an evidence of the certainty with which photography is gaining headway in all directions, even among the poets. The third verse seems to indicate that the muse is in the habit of drawing from our art for her figures, and that her familiarity with it is not confined to the figurative or imaginative either. She can, doubtless, handle the camera as deftly as she can the pen.

Ed. P. P.

And sometimes, thro' the gloom and pain,  
 And sad, discordant jars,  
 The imaged brightness soon effaced,  
 Wilt thou unto thy stars  
 Recall our restless, prisoned souls,  
 Recall them to their own,  
 To rest, while thou art teaching them  
 To know as thou hast known?  
 —Eva Gorton Taylor in the *Farmers' Voice*.

[Translated for the Philadelphia Photographer.]

## TO OBTAIN COUNTERTYPES ON PELICLES OF PAPER COATED WITH GELATINO-BROMIDE OF SILVER TREATED WITH BI- CHROMATE OF POTASH.

BY LEON VIDAL.

THE first operation consists in sensitizing pellicles or paper in a bath of bichromate of potash at three per cent., in which they are allowed to remain about five minutes. When removed they may either be passed rapidly into a dish filled with clean water, to remove the excess of solution which, in drying, would produce crystals, or the surface may be sponged with the white paper used for copying letters. This operation is repeated twice. The first time the greater portion of the free liquid is removed. The second time, with a clean and dry piece of paper, all trace of the liquid in excess is absorbed. The pellicles alone should be treated in this manner. In regard to the Eastman and Morgan papers, it suffices, as they leave the bichromate bath, to stick them to a strip of wood and allow them to dry in obscurity. The same course is adopted for sponged pellicles. No distinction need be made in using pellicles that have or have not been exposed to the light, provided, however, that the final development is made in full daylight. As soon as the preparations are dry, they are exposed to light, by contact, placing in the pressure-frame the original negative and the pellicle, the gelatine side against the negative itself. The length of the exposure varies according to the intensity of the negative, but the progress may be easily followed by opening one of the shutters of the pressure-frame and controlling the coming of the brown image detaching itself on the yellow ground of the film. When

all the details and modellings have well shown themselves, the pellicle is removed from the frame and immersed in a dish filled with water. The washing should be continued until the water no longer appears yellow. Nothing more remains to be done except to develop the image; the operation is performed in full light, in a ferrous-oxalate bath, the same used in the ordinary development of negatives obtained in the camera. This is what takes place: the bichromatized gelatine film, exposed in the negative, is rendered more or less impervious by the action of the light, according as the portions acted upon correspond to portions of the cliché more or less translucent. When immersed in the developer, the impervious portions cannot be penetrated by it and they therefore remain white, and we have whites corresponding to whites. In regard to the parts that have remained pervious, they are affected by the developer, and blacken, because the action of the light, during development, has predisposed them to the reduction. Should the development take place in the dark-room on films not previously exposed to light, we would obtain a positive from a negative. In fact, the portions rendered impervious would, in the course of time, be slightly penetrated by the developer, and black would form in these exposed portions; whilst where the blacks of the negative had not allowed the light to pass, there would be no reason for the reduction of the bromide of silver into metallic silver, hence the formation of a positive. We repeat, it is indispensable to allow the light to act either before sensitizing in the bichromate bath or afterward, when developing with the ferrous oxalate. Instead of the ferrous oxalate, any other developer may be used—pyrogallie acid, for example, or hydroquinone, which, in this case, would give countertypes oftener more clear than the original clichés. The question of the time of exposure presents no difficulty, when one has become a little familiar with the process. It is possible in this way to obtain countertypes, perhaps, superior to the originals. We can, with line negatives, obtain perfect opposition between the whites and the blacks, and in this case emulsion paper will answer without having recourse

to the more translucent pellicle. Insulation should penetrate through the entire thickness of the gelatine film. In the case of woven clichés it is possible to obtain them without the least injury to the original. For the greater number of industrial applications of photography, reversed clichés are indispensable. Here is a good way to obtain them, and, besides, we need only use the original clichés for the production of the countertypes, using these last only, and they alone are condemned to all the risks to which are exposed clichés in the different printing processes.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

At the World Exposition to be held next year at Paris, photographers will be allowed, by the payment of 20 francs for the apparatus, to take views there for four hours. They must also pay the entrance fee. Photographers, who are likewise exhibitors, can take a subscription of 300 francs for each apparatus.

THE first issue of the March *Mittheilungen* gives the doings of the Berlin Society for the Advancement of Photography as presided over by Dr. Vogel. An interesting feature of this session was the exhibition of some fine pictures of landscapes, and of the Observatory at Mt. Hamilton, in California. The interior arrangement of this observatory, with the famous Lick telescope, is well depicted. Mr. Schöne, of San Francisco, furnished the views.

Professor Vogel also presides over the Berlin Society of the Friends of Photography, where everything new and notable is discussed with profit. Mr. Miethe, Mr. Gädicke, Mr. E. Vogel, Jr., and Mr. Milster, are among the men who take a prominent part at these meetings, and who help to keep alive the interest of the members. The first named of these gentlemen showed a picture taken by himself without an objective—only by an opening of 0.61 mm. in diameter. This was a highly successful architectural photo upon glass. The exposure was in this case three minutes, and yet that was too long.

Mr. Gädicke spoke of the use of trans-

parent scales for measuring the sensitiveness of dry plates. The principal thing in this is as constant a light-source as possible. As such, Warnerke uses a phosphorescent plate, which, however, demands consideration.

Mr. Gädicke himself uses a very exactly placed gas flame. Mr. Miethé thinks the flame of a benzine lamp with constant level and asbestos wick very uniform, yet it must be very small, and will illuminate only the blue rays.

This excellent journal contains also a paper devoted to Russian Photographic interests. It is entitled "The Photogr. Solar-Eclipse Pictures in Jurjewez, and Three New Steps in Photography." A paper on "The Provisory Statute for the Vienna Institute." Some book notices. Some brevities, as "A New Projection and Enlarging Objective," by Miethé. Increase of the Sensitiveness of Color-sensitive plates, Oriental Society in Berlin, Flash Photography. Hotels for Amateurs, etc, conclude the journal.

THE *Deutscher Photogr. Zeitung*, March 16, opens with a tribute to the late Emperor, Wilhelm I.

THE *Photo. News* (London) says: We have often referred to the extent to which the illustration of ordinary newspapers is becoming general, and as an instance of this we may refer to the *Freeman* of last week as having no less than twenty-four illustrative cuts in the text.

THE foreign societies are bristling with variety.

THE American societies have undertaken a good lot of earnest business.

MR. TAYLOR'S LENS FOR ARCHITECTURAL SUBJECTS.—In a recent communication of Mr. Traill Taylor to the Camera Club, he referred to the double periscopic lens of Godard, which excited some attention in 1859, but which seems to have been forgotten. This is the kind of lens that Mr. Taylor suggests for architectural subjects, in which it is important to prevent the least distortion. It consists of two lenses, one convex, with a focus of eight inches, and the other concave, having the same focus;

in juxtaposition, these two lenses neutralize each other, but leaving a separation between them of from half an inch to one inch, the concave side of one of the lenses being opposite to the concave side of the other, the desired effect is obtained.

NEW RECTILINEAR LENS OF MR. DALLMEYER.—In this lens, proceeding from the inside to the outside, we have first a lens of *flint* glass, then one of *crown* glass, concave, joined together, but differently cut; then an *air space*; and, finally, another lens of *crown* glass, similar to the first, but reversed, so that its convex side is on the outside, and its concave side on the inside. It is said that this new lens gives images of extraordinary sharpness and brilliancy.

MR. FARMER ON PRINTING BY DEVELOPMENT.—The author, in collaboration with Mr. Tompkins, has made experiments with emulsions of chloride of silver in albumen, collodion, and gelatine, in view of producing positives rivalling those usually obtained on albumenized paper, and which, moreover, would be more permanent than these last. It has been remarked that in positives on albumenized paper, well toned with gold, there exists as much gold as silver; and in certain cases the image is formed exclusively of gold. Printing by means of development has been known since 1853, when Professor Hardwich described certain processes in which iodide of silver was used; up to the present time Mr. Tompkins and Mr. Mabrotow confined themselves especially to the emulsion of chloride of silver in albumen, which, although less sensitive than the gelatine emulsion, gave them good results as to color and the modelling of the image. Development was obtained by means of hydroquinone, but this agent is not indispensable. Mr. Farmer claims for his positives that they cannot be told from positives on albumenized paper, and that they cannot be whitened by means of sulphuretted hydrogen.

SENSITIVENESS OF THE EYE TO DIFFERENT COLORS.—Mr. H. Ebert has made a series of experiments on the sensitiveness of the eye to different colors; we have not yet at hand all the details, but the author

reaches the conclusion that in the artificial light of lamps the eye is much more sensitive to *green*, then comes red, then greenish-blue, yellow, and finally blue.

PROF. HARTNACK, of Potsdam, has just constructed a new photo-microscopic objective, according to the formulæ of Dr. Schræder. This objective embraces an angle of about 26°, and gives a sharp image up to the edge of the field without showing any traces of the chemical focus; its equivalent focus is about fifty millimetres, and allows the reproduction of an object of nearly four square centimetres; the luminous power is such that it has been possible to make an enlargement of from ten to fifteen times, in the light of a gas burner of fifteen candles, in from three to eight seconds, on gelatine plates.—*Photo. Mittheil.*

THE sensitiveness of eosine plates may be increased five-fold by steeping them in a bath of 100 cubic centimetres of water and two cubic centimetres of ammonia for one minute, and then allowing them to dry. This increase of sensitiveness is especially useful for interiors and the reproduction of very dark oil paintings.—*Photo. Mittheil.*

MR. GOLTSCH advises coating the negatives which are not to be varnished, with a thin film of linseed oil, laid on with a tuft of cotton; with a second tuft thoroughly wipe off. This is also recommended for positives by transparence which are cleaned and made clearer by this operation. Should it be necessary to strengthen the negative, remove the linseed oil with a little alcohol.—*Photo. Mittheil.*

MR. HANFSTAENGL asserts that hydroquinone gives excellent results for portraits by combining it with the pyrogallol developer. Develop with the hydroquinone until the strong lights and most of the half tones appear, then finish with a mixture of pyro, carbonate, and sulphite of soda — *Photo. Wochenblatt.*

MR. REID, proprietor of several hotels at Madeira, has established in each one of them a dark-room for the amateur photographers visiting the islands.

## SOME ART PRINCIPLES APPLIED TO PHOTOGRAPHY.\*

BY A. J. TREAT.

(Continued from page 200.)

### PART II.

#### DIFFICULT SUBJECTS.

We often fail in the reproduction of a scene to get the effect the view itself impressed upon us. On close analysis it will be found that the charm of the scene was due to color, which comes out in the print either too black, too white, or without gradations, making a flat effect. Or it may have been due to some distant mountain, which in the reproduction is so reduced in size and effect that it looks but a mere hill. These failures are sometimes useful in showing what can and what cannot be taken by the camera. Beginners, often those who have studied art, are frequently carried away by the beauty of a middle ground or distant view, and after they have photographed it are surprised to find that the foreground, which they had lost sight of in their admiration for the pleasing distance, spoils the effect of the picture by being out of harmony with its principal parts. Or perhaps the foreground was good and the distance objectionable. This goes to prove that whoever makes pictures with the camera must exercise more care than the artist who reproduces nature with brush or pencil, and must not only select those scenes which have claims to good arrangement of their several parts, but are nicely lighted as well, bearing in mind that what is done in photography cannot be undone.

#### MOUNTAIN SCENERY.

All photographers have experienced difficulty in getting views of mountains which do them justice, for if they rise ever so high and grandly into the air, when focussed on the ground-glass they appear to shrink within themselves one-third of their apparent size. This is especially true of Shasta and Mt. Tamalpais from the south, because they rise rather abruptly from a level. Landscape painters experience the same

\* Read before the Pacific Coast Amateur Photo. Association.

difficulty, and consider mountains by far the most difficult of landscape painting. They do not try to paint them topographically correct, for if they did so the effect would be the same as that seen in our photographs, and those familiar with the scene would accuse the painter of not drawing correctly. To escape this seeming defect, it is the universal custom of all landscape painters to exaggerate the height that the apparently correct effect will be given. Hamerton, in speaking of this, says: "That if a mountain to be true, ought to be two feet high and six feet long on a large picture, the chances are that a painter will make it about three feet high and five feet long," and adds that "Turner exaggerated in this way habitually."

This changing of the size of objects by landscape painters that the same impression will be given as when seen in Nature, is not confined to mountains alone. In a criticism of a moonlight scene by Turner, some one has called attention to the fact that the moon is larger than a wheelbarrow in the foreground. The critic observes, however, that this liberty is legitimate, because such would be the impression made by the moon. If it was painted its real and relative size it would appear ridiculously small, and the effect would neither be good, or apparently correct.

To successfully photograph mountain scenery the camera should be so placed that the foreground will be made subservient. Large objects—trees especially—should be kept distant, else they will dwarf the size of the elevation, but if they can be shown in the middle ground and at some distance from the camera, they will add to the height of the elevation by comparison, and give variety to the picture. Not only this, but by their distance from the camera a shorter exposure is possible, and this will help out the distance.

The height of great trees, or any large object, is accented when a smaller object is near to show their comparative size. That object may be anything from an animal to a house, but should be placed subordinately to the object most important. In paintings of Swiss scenery there is generally shown at the base of cliffs or bluffs a picturesque

cottage, which not only adds interest and variety to the scene, but also serves to show us the grandeur of the eminence by comparing its greatness with the puny works of man.

#### PHOTOGRAPHY AND COLOR.

In selecting his view the photographer ignores color *as* color, and only considers it in its value of light and shade. As deep yellow and dark green, or red, are reproduced almost alike, scenes which possess great beauty when looked at from the standpoint of coloring, often make mere blotches when photographed. It is for that reason so much depends upon the general arrangement of a scene to be reproduced, for a picture without color must make up the loss, as far as possible, by the interest of its composition and the beauty of its tones, or *chiaro oscuro*.

An etching, which is the art production nearest akin to photography, generally represents those scenes and that time of day when the coloring of Nature is not as important as the light and shade, as in sunset pictures, when the deepening shadows veil the general coloring. An etcher rarely tries to represent that which is attractive because of its coloring, but aims more to the effect of simple composition and strong contrasts. In this selection of subject he should be emulated by the photographer. The etcher has the very great advantage, however, of being able to change those things that are imperfect, and to leave out certain parts of Nature that do not please. He can, afterward, even change whatever he himself may have done imperfectly. As a photographer cannot do this, it is necessary that he select with even more discretion, knowing that there are certain effects that can be reproduced, and that there are others which cannot.

If it is possible to remove objectionable objects, or add something to balance part of the scene or give it variety it should be done. This form of landscape gardening is often practicable. Leaves can be scattered over bare foregrounds: small trees or bushes can be pulled up and replanted so they will add variety to the scene and perhaps balance some of its parts. Robinson speaks of wait-

ing six years for a certain tree, necessary for his composition, to grow to the required size and height.

THE EMBRYO PHOTOGRAPHER  
vs. THE ARTIST.

A landscape painter requires from two days to two months actual work upon the ground before he can reproduce the scene before him. The average photographer either does not understand or undervalues the power at his command. By it he is enabled to reproduce scenes from nature in a wonderfully short space of time. This is apt to make him overlook the fact that the landscape painter has spent years of study upon his work, aside from the acquiring of mere manual dexterity. Until the photographer has also studied nature and the art principles underlying what is beautiful, he cannot hope to have his work stand the criticism, or call forth the admiration of the artistic world. This praise is the highest reward the photographer's work can attain.

Many do not look at nature except through the ground glass of their cameras. They come across some pretty bit, and without studying the scene immediately set up their cameras and proceed to bag it. Now this is decidedly wrong, for the scene as it appears on the ground glass is somewhat different to what it appears to the eye, on account of the blackness of shadows, and the lens taking in only a certain field. To get the best possible effect from a certain view it must be carefully studied, supposing, of course, it is worth the trouble. It must possess the four great requisites for a picture—breadth of effect, unity of its several parts, variety, and yet harmony of all. The photographer must decide after a careful study of the scene what effect he wishes to produce; whether he will give a short exposure and get brilliant lights and shadows, or whether it will be better to obtain soft half tones by full exposure and subsequent control in the development. To do all this requires careful study and analysis of the scene, but the best possible photograph of the view will be the result. Many will say that this takes too much time, but they must make up their minds to this, that pictures can only be made with the camera

after a close study of the subject, the application of certain art principles, and skilful manipulation in the development.

To get the best result select a spot that is worth the trouble and time. Study it, finding out when it will appear as its best, for not only does the sunlight change the expression of a landscape by being strong or weak, but by changing the position and length of the shadows the composition will, at different times of the day, assume different aspects.

Sometimes the simplest view by the happy effect of certain lights becomes beautiful. Whether that time is in the morning, when the early light is soft and the air seems full of hazy blue—whether at noon when the leaves of trees are tipped with silvery light—or whether late in the day when the long shadows of the foliage show the approach of that time when all nature sinks to rest, is for the true photographer to judge by a close study of the subject.

My own experience is that the best photograph of a scene cannot be made at the first attempt, but that one or more trials are necessary. In proof of this ask most any photographer his criticism on one of his own photographs, and he will generally tell you he could have bettered the result by changing the position of his camera to this or that place. The first picture I made of the "Confident" I did not like because of the expression on the face of one and the dress worn by the other. So I visited the place again, though it is over one hundred miles from San Francisco.

(To be continued.)

[Translated for the Philadelphia Photographer.]

## THE POSITIVE PRINTING PROCESS UPON ALBUMEN PAPER.

A DESCRIPTION OF THE CHEMICAL CHANGES OCCURRING IN THE ALBUMEN PAPER PRINTING PROCESS, FROM A SCIENTIFIC AND ECONOMIC STANDPOINT.

BY DR. E. A. JUST,  
of Vienna.

### PART I.

*Preface.*—The following circumstances have determined me to place this little book before the public.

First of all, that there exists to my knowledge no thorough exposition of the chemical-technical part of the albumen process, for our otherwise excellent hand-books by prominent authors either treat this as quite a secondary matter or only outline it.

Secondly, I may plead as an excuse for the information which I advance and which I obtained from my esteemed customers, my position as an albumen paper manufacturer, and I have also hereby a pretext afforded me for the answering of technical questions which the dealer, the merchant, with whom the practical photographer has often little to do except in a business way, can himself give only in rare cases.

Moreover, I believe my book will be welcome to all those who have not the time and opportunity to read all the different periodicals and yet are anxious to know what is new in this branch of business. The greater part of what this book offers is indeed "old," but observed possibly from different and freer points of view and what is new is gathered from the most authentic sources.

*Keeping Albumen Paper.*—The albumen paper must be kept dry and cool in a very clean box where no dust can enter, and it is to have the prepared side laid downward, flat, and weighted.

If one wishes to have the paper rolled, then he must be careful that the albumen side is roiled on the outside, and never on the inside.

To guard against a too great drying out of the paper and a clearing at the edges, a cover that will exclude the light and air should be provided and may be made of tin, waxed paper, or the like.

It is well known that floating around in the air everywhere are living germs (and thus capable of development) and this is particularly so in the dust of a room, where they occur in great number and which in large cities, after many microscopic examinations are found to consist largely, in fact, three-fourths of them, of horse manure. An organic and therefore, nitrogenous substance like the white of egg, is, when it is moist, a very fit germ soil for the development of the fungus but in a still greater degree when at the same time the warmth of our dwellings, and more especially the

air in the studio is active: then the mouldy spots so well known are the consequence.

Dryness and heat, however, are detrimental in another way. Dry air, particularly when it is at the same time warm and variable, deprives the albumen paper of too much moisture, the layer loses its limp quality, settles, becomes finally "horny," and thus loses the power of taking in the silver solution to so great a degree that it streaks and is made eligible again only by a long and tedious moistening in a cool room.

The rule to roll the albumen side always on the outside is still more important in silvered albumen paper, and in prepared enamelled pictures. Innumerable small crevices, which spread in the finished pictures to large cracks will be the inevitable consequence if the paper is rolled from the inside. This is never to be feared if the albumen side comes out.

*Silvering the Albumen Paper. Condition of the Albumen Paper in which it should be Silvered.*—Albumen paper needs for a good, faultless sensitizing, a certain moisture, as well in the albumen layer as in the under layers of the paper. It should be soft and not dry and brittle, therefore, it cannot be too urgently recommended that those sheets of albumen paper which are intended to be silvered in the morning should be put, with layers of clean blotting paper between them, the night before, in a moist, cool place, in a cellar perhaps; then the next morning they will be soft and can be sensitized without difficulty. This same end can be achieved by putting the sheets to be silvered in a closed box over night and drying with a dish of warm water in the bottom of it. Care must be taken, however, about keeping the paper longer than one night in such a moist place, for after some time, mouldering spots would form, which, though not at first visible to the unaided eye will make themselves apparent in the copying and toning, in the form of a rusty brown color. The advantages which the proper preparation afford are no small ones, viz.:

1. The paper can be better laid in the silver bath, receives the solution more readily, and therefore, allows less light air bubbles to appear.

2. The paper film loses much of its absorbing capacity, takes in less silver solution, and does not roll itself in the beginning of the silvering, so far backward.

4. The silver bath flows off in the drying uniformly and leaves no drops.

No. 1. The outside surface of the albumen layer will be "horny," as we say, because it always comes first into the position to let the moisture be dried; thus will not take the silver bath well.

The consequence of this is, in comparatively fresh paper, the raising of air blisters if the operator does not apply it uniformly and gently. In paper that is completely dried up, the applying is still more difficult, for the paper has then, before the application of the silver bath, such a decided tendency to roll inward, that it is very difficult to avoid air blisters.

No. 2. The purpose of the silvering is, as is known, (a) to produce in the albumen layer a precipitate of chlor-silver, and (b) to transform the albumen into insoluble silver-albumenate.

In order to meet the first requisite, the albumen layer contains a certain quantity of chlor-alkali (chlor-soda, chlor-potash, etc.) distributed uniformly through it, therefore, the whole layer must be uniformly permeated with the silver solution if the desired chlor-silver precipitate is to be produced everywhere in the layer. It is an extremely wrong idea that it is only on the surface that the chlor-silver precipitate should be found. In the copying process the under part of the albumen film plays just as important a rôle and, in fact, more important than the upper, for particularly the half shades, which, when they are formed on the surface, do not so completely prevent the light from reaching the deeper layers of the albumen as the deep shades do, and are yet developed in these under layers; and in consequence of these affecting the eye from out of the depths, there is produced that soft, harmonizing rounding off of the boundary lines between light and shade, which is the necessary condition of plastic effect. The silvering of the whole of the albumen layer is also necessary from another and highly important standpoint. Of course, the whole albumen

layer including that part of the albumen absorbed by the paper lying next to it and which forms the mutual connection between, must be thoroughly transformed into insoluble albuminate.

If this condition is not fulfilled, then the inner layer of the albumen remains soluble, and in the different washings which the paper has to undergo they would certainly become separated and consequently the upper layers would lose their hold on the paper and become detached. This can be overcome only by making the silver solution soak into the whole of the albumen layer and penetrate into the paper as far as the white of egg does; and this is only done uniformly and completely when the albumen layer (in consequence of a certain capacity for moisture) can receive the silver solution uniformly, and in that swollen, and as it were, slack condition, favors the penetration of the silver solution.

The directions given in many books to use the very long floating time of three to six minutes, must, for this main condition, of complete and uniform coagulation, be reduced. With previous soaking such long floating, besides being disadvantageous, is entirely unnecessary.

No. 3. This point is quite important in an economical respect. The following experimental results by Hardwich confirm the author's experiments made many years ago. Strongly albumenized and dry paper shows an absorption of 16 commercial silver solution per sheet, whereas a paper of the same quality if not previously wet through, has an absorption of only 11 commercial per sheet. The 5 commercial of silver solution which the dry sheet took in more than the wet one were absorbed for the most part by the paper. Every practical photographer will, moreover, corroborate this fact from his own experience, that the albumen paper, if it is laid dry in the silver bath, will turn up after a few minutes, and roll itself up. This is caused by the rapid swelling and expansion of the albumen. It is customary toward the end of the operation to lay the sheet flat again for one-half to three-quarters of a minute, because in the meantime the paper has absorbed the silver solution, and besides it begins to expand; but if the paper

is laid in a tender and moistened condition, then there is hardly any bending back and rolling up of the paper.

No. 4. That the surface, that is the top layer of the albumen sheet, comes first into the position to become dried up and "horny" has been already explained. Albumen in this condition, however, does not lose this appearance in the short time of sensitizing, thus it is that drops remain after the pouring off of the silver solution, particularly when the silver bath is strong.

Wetting the paper the night before prevents these faults also. Possibly one might think from this that new paper is preferable, but this is not always so, for according to the experiments of many photographers, paper that has been stored away, if one will only take the trouble to damp it, will prove itself more uniform and better in every way than new paper.

*Quality of the Silver Bath.*—In order to accomplish the silvering of the albumen paper without delay, and to do it well, the following things are necessary for the silver bath :

1. The silver bath should be 10 per cent., *i. e.*, to 100 parts of distilled water there should be 10 parts of nitrate silver oxide, whether liquid or crystallized.

2. It should be perfectly neutral, so that it may not reach either alkaline or acid (try with litmus paper).

3. It should have a temperature of at least 20° Celsius, but could, without injury be heated up to 26° Celsius.

4. Each time before using it must be filtered through a thoroughly clean filtering paper, or through cotton ; and, moreover, it should be thoroughly guarded against dust.

5. Occasionally it should be strengthened, at least after every six sheets of silvering.

6. The silver bath should not be used after it has stood too long, but should, from time to time, be renewed. At longer intervals it should be made over afresh, and the old bath either put into the silver residue, or better, made again with nitrate silver oxide.

1. The ten per cent. silver bath has for some years been preferred by most practitioners. It is possible to obtain good results from weaker silver baths, even those con-

taining five per cent. silver salts, yet then it will not be able to do without the particular ammonia fuming. In America, where this latter process is commonly practised, the five per cent. silver baths are preferred. The advantages and disadvantages which these baths show when compared, are as follows :

(a) In and by itself, the ten per cent. silver bath gives decidedly more brilliant prints ; with fumigation, on the contrary, a difference in the brilliancy of the prints is not noticeable. (b) The five per cent. silver bath, if not kept floating unnecessarily long, is somewhat more economical, because the paper always soaks in more silver solution than is absolutely necessary for sensitizing and coagulation, and this amount of silver solution absorbed costs twice as much in the ten per cent. bath as in the five per cent. This advantage is, of course, partly equalized by the longer floating time and greater absorption in the five per cent. silver bath. (c) The ten per cent. silver bath, freshly made, is immediately serviceable, while the five per cent. silver bath has to be mixed with just as much nitrate of ammonia as dry silver salt used, if one would be sure of perfect coagulation without separation of the sheets. (d) The ten per cent. silver bath shows blisters in the washing after the fixing sooner than the five per cent. silver bath ; therefore, the former recommends more for the winter and the colder regions, and the latter more for the summer and warm climates.

2. Since all albumen papers have a small capacity for acids, the silver bath will gradually become acid, even if it was previously quite neutral. To avoid this, it is advisable to add to the silver bath so much soda solution that in shaking a small quantity of the precipitate of carbonate of silver remains. This keeps the bath neutral for some time, and gradually consumes itself entirely. If this happens then the precipitate must be again produced by a new addition of soda, because then the bath begins again to become acid.

3. Too cold silver baths penetrate too far into the albumen, and cause the coagulation to be much slower, so that the ordinary floating time of one minute, often does not suffice at all. The temperature should not

sink below 20° C., but, on the other hand, it can be raised without disadvantage to 26° C.

4. This rule is so generally known, that only on account of completeness is it mentioned, as an omission punishes itself by complete marbling of the upper surface of the albumen. The method of drawing a strip of filtering paper of the width of the dish over the silver solution, so as to remove the scum floating on the top of the bath, can never take the place of filtering.

It is highly recommended, not only to cover the silver dish with a cover made to fit it when it is empty, but also when it is filled with the solution, and a short pause occurs in the silvering.

*Strengthening the Silver Bath (in general).*

—To convince one's self of the importance of this requirement, it is only necessary to consider what changes the silver bath suffers in the silvering. There come in contact with one another in the albumen sheets on the one side, albumen, chlor-alkali, small quantities of different organic acids and salts, originating always partly from the making, partly from the albumen itself; in the silver bath on the other side, nitrate of silver and water. Consequently there result in the albumen layer the following products, silver albuminate, chlor-silver, superfluous nitrate of silver, small quantities of nitrate alkali, insoluble organic substances of white of egg, and finally, water, which in the drying for the most part evaporates. In the silver bath are found water, nitrate of silver, nitrate alkalies, soluble organic substances coming from the white of eggs, mostly organic acids and salts of the same, with alkalies. If the original silver solution should be compared with this mixture, it would be noticed that two kinds of materials have been added, viz., nitrate of alkali, and soluble organic substances. Since this takes place in every sheet that is silvered, it is clear that these non-silver materials must gradually increase in the silver bath, and multiply more and more as the same bath is used. Small quantities of these materials are not in the way for the purposes of silvering. On the contrary, concerning the nitrate alkalies, according to practical experience, their presence is even useful if in not too great a quantity.

However, to the five per cent. bath before spoken of, there should be added as much nitrate of ammonia as nitrate of silver oxide. But the same thing cannot be said of the soluble organic substances. The chemical character of these has not yet been fully ascertained, but as far as practical experience goes, they are known to produce a bad effect on the albumen, causing it to dissolve, and thus work directly against the end in view, which is coagulation. And on this account we mention, as in the sixth requisite, that from time to time the silver bath be renewed, and also that after long use it should be made over entirely. However, as is known, gradual changes are not so easily noticed, and it is not until more striking faults creep in that the attention is aroused.

The foregoing considerations concern only the changes as to quality which the silver suffers; but if the quantity of the bath should be examined before and after the silvering, a considerable change would be noticed. It is evident that the silver bath is pretty well used up in the silvering; for, according to the experiments of Hardwich, mentioned before, a sheet of albumen paper of ordinary size, properly handled, in normal floating time, withdraws on an average 11 com. of the solution. On the other hand, according to Vogel (see his *Hand-book of Phot.*) the average supply of a sheet in nitrate silver oxide, weighed dry, is 2.37 grs. To fix this proportion is of no particular avail, because it is not the same everywhere; however, it is clearly seen from this, that the silver bath must be just so much weaker in silver the oftener it is used, and that there is need, therefore, of strengthening from time to time. And, moreover, from these figures it can be proven arithmetically just how strong a silver bath must be in order not to be strengthened.

Suppose a 1 litre silver bath is selected, and used so long without strengthening that the volume of the bath does not suffice. This would most likely be the case, owing to the unevenness of the surface of the dish with 200 com. In this stadium it must, however, contain at least six per cent., thus 12 grs. silver salt. In 800 com. about 73 sheets can be silvered to 11 com., which require 73 x 2.37, equal to 173 grs. of silver

salt. A litre silver bath must then contain 173 plus 12 equal to 185 grs., thus  $18\frac{1}{2}$  per cent. silver salt. In greater quantities the matter becomes still more favorable; thus, a 2 litre silver bath worked down to 200 com., should come to a 20 per cent. silver solution. These are baths, however, which no practical photographer need use, since no one would consider it rational to sensitize the first sheet with a 20 per cent. silver bath, and the last with only a 6 per cent bath.

The strengthening of the silver bath is proved, therefore, an absolute necessity, and must never be omitted if good and rational work is desired. A friend of mine who makes large reproductions, places great value on the strengthening. According to his experiments, a sheet of double albumenized paper (8 kilo.) lays claim to a silver bath of 2 grs. of silver salts weighed dry. For example, if he wants to silver 24 sheets, he uses a strengthening solution of 24 times 2, equal to 48 grs. silver salt, and 24 times 10, equal to 240 com. water. After each sheet is lifted from the silver bath, 10 com. of this strengthening solution are added to the silver bath, so that it shall again have the exact normal concentration for the next sheet. Other photographers strengthen only once a day, and that immediately after it has been used. They add to the bath as much dry silver salt as estimated from the number of silvered sheets. For example, 10 sheets are silvered. This corresponds to a withdrawing of  $10 \times 10$ , equal to 100 silver bath, and  $10 \times 2$ , equal to 20 grs. silver salt. The volume of the bath is diminished 100 com., corresponding to 10 grs. silver salt, thus it must be strengthened with 20 minus 10, equal to 10 grs. dry silver salt.

Others use for this purpose the perfectly useless argentometer (silver measure), and from time to time bring the strength of their bath up to the desired condition according to this method. This process is to be entirely rejected. It is worth the trouble to disclose more minutely the real value of the argentometre process in a chapter by itself.

(To be continued.)

### OUR PICTURE.

For a number of years Mr. F. W. Guerin has given a good deal of attention to the

production of large pictures of children posed to represent such fetching titles as "Among the Daisies," "Cupid," and so on. His productions are sold in the picture stores all over the country. Baby pictures always win their way. Some fond papa or proud mamma will invariably find "a resemblance" in a baby photograph "to our own" and want a copy of the counterfeited presentment to hang on the wall as a mimic "well-spring of pleasure." Mr. Guerin is one of those great-hearted, amiable, child-lovers who possesses a keen sense of humor and many of his pictures serve as his "escape valves." Among them is the affecting pair which serves as our present embellishment. No explanation comes with them, but should any one of our readers confess himself so stupid as not to understand he may come to our dark-room and know all about it. The reductions are from full sheet pictures and were made by Messrs. Roberts & Fellows, who also made the prints. Several of our readers have inquired concerning the methods adopted for making our *Mosaics* pictures from the prize-takers. One of them writes: Tell us all the particulars: are the negatives made by the wet collodion process, how exposed, in the gallery or by direct sunlight, how developed, and especially how intensified without losing half-tones? I have tried the thing often enough, but never with such splendid results as yours, hence my request to have your way of doing it published in an article for the benefit of many. I will not press your valuable time for a direct answer but shall be content to read it in print in your next issue.

There is no secret to reveal: Mr. Fellows writes us as follows: The process is a simple one in so far as the chemical manipulation is concerned. We use the wet process for making the great bulk of our copies. In the first place we have to keep up the wet process for our lantern slide production and therefore it is both cheaper and more convenient to use this means of production than the dry and it is also a capital way of utilizing our rejected dry plates. We use the ordinary bath, of course, with a heavily iodized collodion, and intensify, if necessary, with pyro and silver. Our exposures are

made under the skylight using both top and side light. So much for that part of it. The arrangement of the mosaic is altogether a matter of taste and it often requires considerable manœuvering to make up a harmonious grouping out of pictures of odd sizes. We have sometimes cut a picture in half and cut out a portion from its centre in order to bring it into its proper proportions with the balance of the group. There is no way in which one can explain further; practice will do all this in itself and carry its own explanation.

With reference to his negative manipulations, Mr. Guerin writes us as follows:

"We use Cramer's plates exclusively, and the quickest of his make we can get. Our formula for developing is:

A.			
Water	.	.	64 ounces.
Sal Soda (cryst.)	.	.	1 ounce.
Yellow Prussiate of Potash	.	.	3 ounces.
Sulphite of Soda (crystals)	.	.	6 "

B.			
Water	.	.	6 ounces.
Sulphite of Soda (crystals)	.	.	1 drachm.
Sulphuric Acid.	.	.	15 minims.
Pyro	.	.	1 ounce.

For right timed negatives we use 2 ounces of A, 1 drachm of B, 2 ounces of water and a few drops of bromide of potassium of a 10 per cent. solution. We make our cabinets on 8 x 10 plates divided in the camera in two 5 x 8, and develop them in a wooden tray by six at the time. Each negative developed is replaced by a new one, and so on until all the plates exposed that day are developed. We never show our negatives to customers, but furnish them proofs. We keep our exposed plates in a box piled in different piles according to exposures given, and modify the composition of our developer according to classification of the piles. All pictures above 11 x 14 are made with a Her-magis Mammoth lens and Somerville's Universal No. 6; up to 11 x 14 with a No. 7 B Voigtlander. Our toning bath is, tungstate of soda 20 grains to 16 ounces of water and gold."

The well-known Dresden paper, the "N. P. A." was used for our prints and was imported for us by Messrs. E. & H. T. Anthony & Co., 591 Broadway, N. Y.

## THE METAMORPHOSES OF THE SILVER IMAGE.

BY LYONEL CLARK, C.E.

BELIEVING the best form of printing process to be one in which slow development is employed, I have been trying lately to obtain some chemical method of replacing the blacks in the gelatine bromide development process by some warmer tones. These trials have let me into an interesting set of experiments on the silver that forms the image of a bromide print, which may not be uninteresting. My first experiments were, of course, made in the direction of varying the exposure and development, but no beneficial results were obtained in this direction, occasionally a brownish tone is produced, but the print nearly always suffers, becoming flat and mealy.

I then made some experiments in fuming the paper with hydrochloric acid, after Blanquart Evrard's process, but beyond rendering the paper very insensitive, it had no effect in altering the color of the developed image.

I then took a new line of country, and after developing and fixing the print, acted on it with several oxidizing substances, changing in this manner the nature of the haloid salt, of which the image was formed, and then redeveloping it.

My first experiments were made by transforming the metallic image, or what, for the sake of argument, I will assume to be a metallic image, into a chloride of silver, or a double chloride of silver and some other metal or base.

With this idea I treated the halves of various prints with ferric, cupric, mercuric chloride in strong solutions. The bleaching or oxidizing action is very rapid in all these cases. With mercuric chloride it is very complete, not a trace of the image being left; but with the other chlorides faint, brownish-yellow images always remain.

On refixing these oxidized images a further difference is noticed, whilst the mercury chlorized image reappears (a sulphide of mercury being formed), the iron and copper chlorized images disappear totally. I have had very visible images on

glass plates, of which, after fixing, not a trace remained.

The image appears to be completely destroyed, as the strongest reducing agents fail to bring any trace to light.

The unfixed portions, however, are easily developed by any of the ordinary developing agents, such as alkaline pyro or ferrous oxalate. They redevelop up slowly and easily exactly to the same state that they were before being chlorized. There is no difference to be observed between the half treated with pyro and that treated with ferrous oxalate.

May I be excused if I make a slight digression here, and say that I think a very easy and reliable process of either intensification or reduction might be based on this process? I am aware that Messrs. Cosmo Burton and A. Laurie proposed and described, some time back, a process of intensification by means of mercuric chloride and redevelopment, and that cupric bromide has been used for the same purpose, but I am not aware that it has ever been proposed as a process of reduction.

Roughly, the process I should recommend would be as follows: Supposing that directly after development, and before fixing, you are discontented with your development, the picture is too hard or too weak. In this case, after hardening the film with alum, and before fixing, I should chlorize it, and then, after well washing, proceed to redevelop it, taking care in this development to avoid the errors I had fallen into in my previous development. For this second development I should advise the ferrous oxalate; much less washing is required between the operations than when you use pyro, for, as you all know, if ferric chloride be the oxidizing salt you have used, the slightest trace left of this will give ink-stains in the presence of pyro.

As far as my idea of getting different colors by chlorizing and redeveloping the film was concerned, these experiments were a failure. The color of the deposit develops just the same. I tried also bromizing the film with identically the same results. I further used an oxidizing mixture, composed of bichromate of potash and hydrochloric acid. But again the result remained

unchanged. In fact, it is quite impossible to tell, from the color and appearance of the image, whether the film has been chlorized, bromized, or simply oxidized. With chromic acid, I have got a slightly different color, but the whole image had lost so in intensity that I am inclined to put it down to other causes.

My idea, therefore, of obtaining difference of color had failed.

I then proceeded to use iodine as my oxidizing base, and treated fresh prints with iodide of mercury and iodine, or rather tincture of iodine diluted with iodide of potassium.

Here, for the first time, I thoroughly succeeded in altering the color of the print when treated with mercuric iodide, and redeveloped either with pyro or oxalate, the print has a rich brown color, which to me, at least, is fairly pleasing—as to its permanency, I am afraid to say anything. I know that bromide prints bleached with mercuric chloride and treated with ammonia fade very rapidly. In one case under my notice, in two months the mounted print had all but disappeared; but whether these prints, which have been redeveloped and refixed, will also suffer, I am unable to say. I shall watch their existence with great interest.

With the tincture of iodine I had a veritable surprise. The positive print, when placed in the solution, rapidly turned into a negative. The conversion is very pretty. A dark bluish deposit settles everywhere on the white paper, whilst the silver image rapidly bleaches to the well-known gray of silver iodide.

The darkened negative image appears to be an unstable substance; it is, I presume, a compound of iodine with gelatine; iodide of mercury darkens it slightly; iodide of potassium turns into purple and green, chromic acid blackens it; mercuric chloride bleaches it, and leaves a faint image of the original positive; on treatment with ammonia, it gives a greenish-yellow image.

The bluish negative is destroyed by hypo very rapidly, and leaves a faint yellow positive. Dr. Vogel, I think it was, proposed a test for hypo on these grounds; in fact, the iodide of starch test is closely allied to this, in its *raison d'être*.

Sulphurous acid destroys the blue image, but not hydrochloric; and either the pyro or ferrous oxalate developer completely removes it, leaving a very delicate lemon-yellow positive behind. Whether it would be possible to tone this image, and so get greenish colors, I am unable to say, but the change of the black deposit into the lemon-yellow image is very curious.

Of one other metamorphosis I would speak, and that is the use of the sulphantimoniate of potash, or Schlippe's salt, by means of which the image is turned into an antimoniate of silver.

The usual way to use it is in connection with mercuric iodide—Mr. Debentham's system of intensification; but I find that a large gamut of tones, from brown to red-brown, can be obtained by either chlorizing, bromizing, or oxidizing the image in any of the above-mentioned ways, and then treating with the Schlippe's salt. If the oxidation be carried on very carefully, almost a scarlet image can be obtained.

I have tried to obtain a Bartolozzi red by these means, but without great success, but for future operators would point out some of the neutral chromates of the alkalis as likely to give the desired tone. Once, whilst treating a print with chromic acid, I got a bright-red deposit of chromate of silver. In fact, this metamorphosis or change of one silver salt for another might be useful in many ways. By transforming the image into a fluoride, and treatment with sulphuric acid, we might be able to form hydrochloric acid, and so make the silver image engrave itself on the glass.

One other point I should like to mention, and that is the action of these oxidizing agents on the exposed and undeveloped film. I find that they, at any rate, considerably slow the action, if they do not altogether destroy it. I have exposed a bromide paper to the light till the image became visible, and after treating it with cupric chloride, have successfully developed it. When the exposure is short or normal, I am almost inclined to believe that the image is entirely destroyed. If it is entirely destroyed, we ought to expect the first action of the oxidizing agent on the developed image to bring oxidation to the developable stage,

and a prolonged treatment should then in its turn destroy even this developable image. I can only say that a prolonged sojourn in the oxidizing solution very considerably weakens the image, it being impossible to obtain the same vigor as when the time has been shorter. On the other hand, the image never entirely disappears—it is always more or less visible. This may certainly be due to the fact that some of the metal of the chlorizing solution combines with the silver of the image, as we know mercuric chloride forms a double mercurous and arsenious salt, either or both of which can be reacted on.—*Conference of the Camera Club.*

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### OBITUARY.

ANOTHER old-time photographer is gone. Marcus A. Root, of Philadelphia, is dead. It is said he was the first American to use the daguerrotype and so proficient did he become with it that he was awarded first prize at the World's Fair in London in 1851 and at the New York Crystal Palace Exhibition for the excellence of his exhibits. He had studios in Philadelphia, New York, St. Louis, Boston, and Washington, his New York place being the handsomest in the country.

His work was of so high an order of excellence that it was almost an impossibility to get into his office owing to the crowds in waiting. Mr. Root's first studio in Philadelphia was on Jayne street, between 7th and 8th. His life was an eventful one. In June, 1856, he invested \$40,000 in the Mt. Vernon Hotel, Cape May; a few days later the place was burned to the ground. He lost every cent of his money. In December of the same year he was so seriously injured in a railroad accident that it was five months before he could sit up. When Jenny Lind first sang in Philadelphia Mr. Root paid \$600 at auction for the choice of seats. In 1863 he began the publication of a book on photography called the "Camera and the Pencil." We have a copy which he gave us, bound in Turkey Morocco. It is a model of beautiful book-making.

The first part was printed and sold and after the second part had been stereotyped

and in press the building and its contents were destroyed by fire. Mr. Root was the first man to introduce the ambrotype. At the Centennial of 1876 he exhibited a collection of pictures of the most prominent people taken by the daguerrotype process, and which was afterward presented to the Historical Society. The portraits of Henry Clay and Daniel Webster on the United States currency were taken from daguerrotypes made by Mr. Root. Three years ago he fell while attempting to get off a street car, breaking three ribs which punctured his lungs. From these injuries he never completely recovered. His age was eighty years. Mrs. Root and seven children survive him. His brother, Samuel Root, has been a photographer in Dubuque, Iowa, for many years.

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### PHOTO-ENGRAVING, PHOTO-ETCHING, AND PHOTO- LITHOGRAPHY.

By the time these lines reach the majority of our readers, Mr. W. T. Wilkinson's new work, with the caption above, will be ready and in the hands of those who ordered it early. It is a splendid work, handsomely bound in an original cover, with nearly two hundred pages the size of *Quarter Century*, and, moreover, is a very thorough and practical one. It has been written by an actual *workman*, and not by a novice whose knowledge is simply superficial and theoretical. It is a book that the novice can take in his hand, and by following carefully come out with results that will rival the best. Some ten days ago one of our New York daily papers printed the following :

"As compared with the cost of setting up the work, and making plates from the type, the cost of photographic reproduction is small, and as the accuracy is, of course, unquestioned, the time is not far distant when every reproduction from an English book will be made by this process. At the same time, while the process has been known more or less completely for ten years, but very few firms have succeeded in using it satisfactorily; delicacy of manipulation is necessary in the preparation of the gelatine,

and thousands of dollars have been wasted in preparing gelatine sheets that have been found too hard or too soft for the purpose. Experts in this business predict that when some infallible and easy method of preparing gelatine plates, always of the same character, has been found, and also the secret of making them strong enough to resist the power press, the business will take a tremendous stride in advance."

This time has come and the "infallible and easy" method of preparing gelatine has been made plain by Mr. Wilkinson—so plain that there is no difficulty in following him. Like the generous and sympathetic (and we may say genuine) photographer that he is, he has opened wide the door to the secrets which have been withheld by the few, and given the long desired information freely and entirely. Agreeable to our arrangement with him, we have revised and enlarged his work extensively. The first and second editions, published in England were not as large as *Mosaics*. To do the work thoroughly we were obliged to master the zinc-etching process anew and to go further into its details. And now we are able to say, that it is as fascinating and enjoyable a branch of our art as the development of the negative. To see the *growth* of the image upon the zinc plate is very enchanting. The results are very familiar to our readers, for they appear in almost every issue of our magazine. In our next number, however, we will present as "Our Picture" two zinc etchings which were produced from a pair of lantern slides sent us from England, which will give ocular demonstration of what lovely things can be made by following Mr. Wilkinson's instructions. The practical photographer, by these reproductive processes, is enabled to fill a demand upon him which is daily growing. The amateur will find them to give him a new and pleasant field for diversion.

All the processes on zinc, copper, pewter, and stone are given entire. The work is easy; the plant is not expensive and—the new book makes everything very plain. Nearly 200 pages, \$3.00. We refer you to the advertisement for further particulars.

## Editor's Table.

MR. WILL H. FOOTE, of Flint, Michigan, is the happy possessor of a No. 7 B Suter lens which he considers a prize. And considering the admirable quality of some children's pictures he made with it recently (five inch heads in two seconds), he has great reason for congratulating himself. This is the way he writes:

"I don't claim anything great for them, but when I tell you that they had only two seconds exposure, you may be enabled to better understand what kind of a Suter lens I have. I think that little (?) of it, that I have a Mosler fire-proof safe in which to keep it nights. I would not part with it for \$500."

And this seems to be the way every owner of a Suter lens feels about it.

OUR 1888 SOUVENIR, SECOND EDITION.—The special offers made on page 3 of the cover of our souvenir have exhausted our supply of a number of our publications. We have, therefore, been obliged to revise our offers and to *issue a new souvenir*. It contains a good many points which were not in the other. We will supply it, free of cost, to all who may wish for it. Intending book-buyers should consult it. Remember page 8.

Quarter Century ON HORSEBACK.—A photographer in Fleming Co., Ky., writes:

"I enclose ten cents extra to register *Quarter Century* because it will have to come partly overland on horseback. If the mail is heavy, books and periodicals are held over to lighten the mail, thus delaying them two or three weeks."

MR. COOLIDGE's comical foregrounds are sending fun and fame all over the country. They are artistically drawn and very cheap.

CORRECTION.—In Mr. Emil Frey's paper on page 232 read (for glass cleaning) soft water 1 quart, instead of 1 part.

FIRE.—We regret to learn that the studio of Mr. J. F. ALLAN, Owensboro, Ky., with its entire contents, was totally destroyed by fire April 15th, and no insurance. Mr. Allan would be glad to correspond with any one needing a good operator or crayon artist. He is a bright, enterprising man, and understands his business.

A GREAT success has been made by Messrs. GOLDSMITH & MOFFITT of their Sensitized Paper Preservative. It receives the highest praise from our most prominent photographers who use it, in all parts of our country. The hot weather will make it very desirable.

BARGAINS.—The *green* circular of Messrs. BUCHANAN, BROMLEY & Co., Philadelphia, offers a most attractive list of bargains in accessories, apparatus, cameras, plates, burnishers, camera stands, and lenses. You can get a copy for the asking.

BURNET'S *Essays* IN THE PENINSULA.—Mr. A. J. WHALEN, N. Adams, Mich., writes:

"It may not be too late to tell you how highly I prize Burnet's *Essays*. Five times its cost would not buy it, if I could not get another copy. *Quarter Century*, too, is just such a book as every photographer should possess."

ONE of the best pictures we have seen recently comes from the studio of Mr. JOE L. DOUGLASS, of Columbia, Mo. Mr. Douglass has been operating only about a year, and already shows himself capable of understanding the principles of lighting and arrangement perfectly. The picture is of a young lady in Grecian costume, and is an artistic and technical gem.

MR. N. P. RICHARDSON, Easthampton, Mass., has favored us with a number of excellent cabinet pictures which have been treated with his new Glacé Lubricator. They not only receive a charming tone by his plan, but the operator who uses the lubricator is secured against all annoyances from gumming, scratching, and streaking which attend common and impure lubricating material. It does not cost any one very much to prove all this.

PHOTO-ENGRAVING AND ETCHING.—Any one can learn to make such engravings as appear in our magazine from time to time. The processes are easy; the plant is simple and inexpensive and the material is very cheap. The early worker gets the trade.

A NEW ERA.—Our magazine will now fall in with the popular plan of our first-class magazines, and begin with this issue *two serial stories* on first-class subjects, and by learned and enter-

taining authors. The first, "Practical Photography Fully Explained," by Dr. J. H. Janeway, U. S. A., and the second, "Printing Upon Albumen Paper," by Dr. E. A. Just, of Vienna. Both will write "all the little things" fully and carefully. Now is the time to subscribe!

MR. A. T. PIERCE, an amateur of Cavendish, Vt., has sent us seven views of the recent Rockingham railroad smash-up, which show that even "wrecks" can be artistically handled, and there is a choice of both point and time of day. We haven't seen anything of their character that surpasses these.

MR. H. M. WAIDE, Quincy, Ills., one of the Chicago medalists, has favored us with a number of very excellent cabinet pictures. There is surely an individuality about them which makes them very attractive. Both negative making and printing are very superior, as we hope soon to show the admirers of Our Picture.

LEARN TO PHOTO-ENGRAVE.—Mr. Wilkinson's new work not only tells you how, but also how to obtain all the appliances for the work.

THE Brooklyn Camera Club has removed to 731 Fulton St. W. F. Miller, President.

THE *Syracuse Journal* of April 12th publishes a long article on two photographers named Rice and Loomis who have swindled the goodly Syracusans out of several thousand dollars by failing to fill orders taken at a very low price. More recently they were "working the same racket" in Memphis. They seem to prefer towns with historical names, and, therefore, we caution the public against them. Photographers should spread the fame and ill fame of R. & L.

"A TRIP through Switzerland" was illustrated at the New York Society April 25th by Prof. Elmendorf. He used Carbutt's plates. Mr. Carbutt came on to witness the projections. We have seen some admirable portrait work made with Mr. Carbutt's new "Eclipse" sen. 27 plates. Everybody says "they look like wet-plate pictures."

MESSRS. SWEET, WALLACH & Co., Chicago, have issued a very pretty new souvenir in the form of a memorandum book. It contains a lot of sense.

"Quarter Century," writes Mr. J. R. HANNA, of Auckland, New Zealand, "is a very fine work

and one that is sure to have a very large sale. It ought to be in the hands of every progressive photographer."

RESOLUTIONS on the demise of Mr. Zentmayer at the Photographic Society of Philadelphia, Wednesday evening April 4, 1888.

The death of Mr. Joseph Zentmayer, the distinguished optician, formerly an active and more recently an honorary member of the Society, was announced by Mr. John C. Browne, who offered the following resolutions in regard thereto:

"The Photographic Society of Philadelphia, having heard with deep regret of the death of Mr. Joseph Zentmayer, one of its honorary members, it is moved that the following minute be entered upon the Record Book of the Society, and a copy of the same be transmitted to his family.

"The members of the Photographic Society of Philadelphia recognize in Mr. Zentmayer a man of great ability in his profession, and honor his name for what he has contributed to the improvement of the microscope, as well as to the production of original forms of lenses employed in photography.

"They recall with pleasure the friendly, genial intercourse had with him, and desire to express their appreciation of his extraordinary modesty in regard to his own most valuable improvements in the optical instruments named."

Mr. Samuel Sartain and Mr. Frederic Graff added tributes of regret to the memory of Mr. Zentmayer, expressing their personal regard for him, and the resolutions were passed unanimously.

At a meeting of the historical section of the Brooklyn Academy of Photography, held Monday evening April 2, 1888, it was resolved that an effort be made to collect unmounted prints from negatives made during the late "blizzard" by members of the Brooklyn Academy of Photography, other amateur photographic societies and professional photographers, the collection to be inserted in an album or albums and carefully preserved to commemorate an event that must be considered "historical."

A committee was appointed to solicit and collect all prints or negatives necessary for the purpose.

The committee hereby solicit your earnest and prompt coöperation, and ask you to kindly send them, as soon as possible, all the unmounted prints you possibly can. The size of print, or kind of paper used is not material. In case

you cannot spare the time to make the necessary prints and are willing to intrust your negatives to the committee, they will make the prints and assure you a prompt and careful return of negatives.

Each print should be marked on back margin with pencil memoranda as to when and where made and name of maker.

There is a good old adage which inculcates the necessity of "not deferring until to-morrow that which may be done to-day." Please apply it to the matter to which we call your attention. Committee, Hermance Tremper, 54 Park Place, Brooklyn, Walter Longman, Jr., 207 Pearl St., New York.

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*Photographic Mosaics: An Annual Record of Photographic Progress.* Edited by Edward L. Wilson, Twenty-fourth Year. New York: E. L. Wilson, 1888.

An interesting and well-arranged summary of the new developments in photography during the past year. It contains many valuable ideas for the amateur. It is a continual surprise to notice the number of improvements constantly brought forward in connection with this fascinating pastime, and from the contents of this little book it is evident that the past year has not been behind its predecessors in bringing to the amateur novel ideas and improvements.—*Iron.*

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MR. W. L. SHOEMAKER, the famed Solar Printer, for many years with Albert Moore, Philadelphia, now has a studio at Phoenixville, Pa. Success to him. He offers several solar cameras for sale in *Specialties*.

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*The Science of Photography* is a new journalistic candidate for photographic favor, published by Messrs. JAMES W. QUEEN & Co., Philadelphia. Its editors are Mr. Joseph M. Fox, Dr. W. M. Sweet, and Xanthus Smith, Esq.

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Our amateur readers will see that Dr. J. H. JANEWAY, U. S. A., has anticipated their Spring desires by beginning his valuable papers in our current issue. He will continue them for some months. Development will come after this; then printing; toning and fixing; film work; window transparencies and lantern slides; indoor portraiture; instantaneous work, both by day and night; interiors, and "some wrinkles to conclude with." The whole will make the best sort of a manual and a good "serial story." There is no more intelligent writer than Dr. Janeway, and we are most fortunate—all of us—in enlisting his interest in our general behalf.

"By Gas Flash Light using EASTMAN'S Special Plate" is written on an excellent cabinet portrait from Mr. Jno. W. Rusk, Cleveland, O. It is really wonderful.

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THE STAMP PORTRAIT.—Not so many of our readers, as there should be, are acquainted with the stamp portrait. It has a promising future, and should bring a decided increase in the business of many photographers. For political campaign purposes; for some classes of advertising and commercial work; for portraits of the classes of schools and colleges, and similar cases, it has a decided field, as yet hardly touched.

The patent for the stamp portrait is now held by Mr. H. A. HYATT, of St. Louis, and in the hands of this enterprising gentleman promises to develop into a notable branch of business. Already several orders have been received for a thousand of the portraits, to be used for political purposes. Not only is Mr. Hyatt turning out the portraits vigorously, but he has invented a new machine for taking them which possesses most valuable improvements. In addition to the usual threaded rod for focussing, there are two others, controlled like the first from the camera—one elevating or lowering the portrait to be copied, and the other moving it from side to side, so that the most accurate adjustment is possible while the eye is at the focussing-glass. The whole affair is mounted on a heavy base on which it can be revolved according to the direction of the light. The image can thus be presented to the twenty-five little lenses in perfect adjustment. The machine is entirely new in these improvements, and they make it very valuable for ordinary copying work as well.

By these means it is a mere trifle to turn out a few thousand of the portraits. The apparatus will be one of the attractions at the coming convention, at which Mr. Hyatt intends to exhibit it.

The new Magic Vignetter is also one of the attractions of Mr. Hyatt's establishment. It is attached to the camera, working after the principle of an "elliptic" (Is that correct?—Ed.) shutter, and can be adjusted to any size of opening.

Mr. Hyatt not only supplies Missourian photographers with excellent goods, but is pushing his trade into the South through Texas into Mexico, and as far West as California. We call attention to his announcement in another column.

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"I am very pleased with *Quarter Century*."—WM. MACY, New Zealand.

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. ~~We~~ We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

**MAKE OUT YOUR OWN BILL,** and remit cash with your advertisements, or they will not be inserted.

FOR SALE.—In a city of 15,000 inhabitants. Best light, well-equipped, and doing a good business. Address,

W. B. GLINES, Hutchinson, Kan.

FOR SALE.—The only gallery in a town of 1700 inhabitants. Good surrounding country. Will sell cheap if sold within sixty days. Please write for particulars to

CHAS. W. BILES, Fairfield, Clay Co., Neb.

FOR SALE.—At *half value*. Handsomely furnished gallery in thriving central New York town. Good business. *Unusual bargain.*

"Gallery," Box 10, Rochester, N. Y.

FOR SALE.—Photo. and Ferrotypes gallery, with or without instruments. Splendid light. Low rent. A good bargain. For particulars, apply to

A. T. CHAMBERLAIN,  
205 Main St., Woonsocket, R. I.

FOR SALE.—As they are, six direct solar cameras, 14 inch condensers; will print up to 25 x 30. Lately in use at Albert Moore's. Also a library of photographic books. Cheap for cash. Address,

W. L. SHOEMAKER, Phoenixville, Pa.

Get Wilson's "Quarter Century in Photography," \$4.00.

FOR SALE.—A photograph gallery in a live town. Good trade. Good prices. No opposition. *Cheap for cash.* Reason for selling, going into other business. For particulars, Address,

J. M. AUSTIN, Newport, N. Y.

FOR SALE.—Two photograph wagons, which were formerly used as dark-rooms. Both have enclosed steps in back.

PACH BROS., 841 Broadway, N. Y.

## BUY BURNET.

FOR SALE.—My well-established photograph and portrait gallery, with four years' lease. Twenty-seven years in Chicago. The only reason for selling is I am sixty years old next birthday, and want to retire. Never have made as small a sum as \$5000 clear a year; always been over that, and have hired every dollar of the work done for the past fifteen years. This is a golden opportunity for one or two experienced persons who can do their own work; they could save the value of their salaries additional to what I have. If sold within ten days a person gets a bargain. Address,

C. D. MOSHER, Art Gallery,  
125 State St., Chicago, Ill.

*Photo-Engraving, Photo-Etching,  
and Photo-Lithography.*  
*Nearly ready. Price \$3, post-paid.*  
*See advertisement.*

PHOTOGRAPHERS doing business in Central New York have their attention called to the new Retouching Bureau recently opened in Utica. The gentlemen in charge are artists of ability who guarantee first-class work. Their prices are reasonable, and they respectfully invite photographers to write for particulars or send negatives for retouching. Coloring also done for the trade.

H. S. KELLER & C. C. JARVIS,  
12 Tibbit's Block, Utica, N. Y.

PRACTICAL ESSAYS ON ART. By John Burnet. Reproduced entirely by Photo-Lithography, by the Photo-Gravure Company, New York. Arranged and Edited by Edward L. Wilson, New York: Edward L. Wilson, Publisher, 1888. Price, \$4.00.

The publication of these reproductions will be hailed with great pleasure by all students of art, and particularly by artistic photographers. As many know, the original work was published in three parts, as follows: 1. Practical Hints on Composition in Printing, illustrated by examples from the great masters of the Italian, Flemish, and Dutch Schools, published in 1822. 2. Practical Hints on Light and Shade in Painting, illustrated by examples from the Italian, Flemish, and Dutch Schools, published in 1826. 3. An Essay on the Education of the Eye, with reference to Painting, illustrated by copper-plates and woodcuts, published in 1837. The original price was in the neighborhood of \$14, and for a number of years the work has been scarce enough to command many times that amount.

It is to be seriously regretted that so many competent draughtsmen and technically first-class photographers have grown up without the advantages of a work of this kind, and the fact is not sufficiently appreciated that the main difference between the artist and the picture-maker lies in the one point of knowing how to choose a position. To expose a plate on a beautiful landscape, develop it according to rule and then *pay another man to print from it*, is the height of the ambition of many amateurs; but let the results of such work be compared with those of the careful student of positions and compositions and they are nowhere. To be able to estimate exposure and calculate the strength of your developer properly are all very well; but add to this the knowledge of where to stand your tripod and how to choose the best conditions of light and shadow, and you are no longer merely a photographer, you become an artist who uses the camera as an instrument of precision instead of making it a toy. Another class of students to whom Burnet's Art Essays will render incalculable aid is the critical class, and here a great aid is rendered to the intelligent public as well, for a critic who thinks he knows, but who judges without stating the principles upon which his judgment is founded, becomes a nuisance to his friends and a burden to society. This trouble can now be readily obviated by a careful study of the Art Essays.—*Iron.*

**BUY BURNET.**

FOR RENT.—A first-class gallery in Athens, Penna. G. L. ESTABROOK, Athens, Pa.

WANTED.—Negative retoucher wanted immediately—lady preferred. Must be first-class. Send samples of work done. A good situation for the right person. Address, PITTAWAY & JARVIS, Ottawa, Ont.

*Photo-Engraving, Photo-Etching,  
and Photo-Lithography.*  
*Nearly ready. Price \$3, post-paid.*  
*See advertisement.*

A "LIFE-SIZE" lens wanted, one that will cut sharp and clear, a full life-size bust picture. A good instrument will be purchased or traded for other useful articles. Address

PACH BROS.,  
Broadway and 13th St., New York.

Get Wilson's "Quarter Century  
in Photography," \$4.00.

FOR SALE CHEAP.—My portable gallery, fitted up new one year ago. Size, 12 x 26 feet. Will sell whole or part. Gallery in Ontario, N. Y. Address,

M. S. LOVELL, Randolph, N. Y.

#### QUARTER CENTURY IN PHOTOGRAPHY.

We would call the attention of our readers to Wilson's *Quarter Century in Photography*, the second edition of which is now before us. We consider it the most complete and instructive hand book of photography ever issued in the English language. It is of great value, both to the amateur and professional photographer, is comprehensively written, contains 386 illustrations, and 528 pages of valuable reading matter, has an elaborate index, and is the best work of the kind that has been brought to our notice. From all parts of the country we hear it spoken of in the highest terms. A partial list of the illustrations, and a specimen page of the index will be sent to any address on application to the author and publisher of the work, MR. EDWARD L. WILSON, 853 Broadway, New York, U. S. A. The formula for the new "Hydroquinone" development, given in the book, is worth many times its price, which is \$4.00, by mail, prepaid.—*The Australasian.*

FOR SALE.—Several sets of apparatus and lenses suitable for amateurs.

Address "E."

Office of PHILADELPHIA PHOTOGRAPHER.

JUST OUT.—The Stoddard Print Roller, the best in the market. Price, \$1.00.

GEORGE MURPHY,

No. 2 Bond St., New York City.

*Photo-Engraving, Photo-Etching,  
and Photo-Lithography.*

*Nearly ready. Price \$3, post-paid.*

*See advertisement.*

ADT'S PATENT PRINTING FRAME.—The printing frame of the future. Considering the construction of the Back-board, the Patent Tally, and the Elastic Felt Pad, the Adt Patent Printing Frame is the cheapest and best in the market,

PRICES.

3½ x 4½ . . .	\$0.50	6½ x 8½ . . .	\$0.75
4 x 5 . . .	50	8 x 10 . . .	85
4½ x 5½ . . .	50	10 x 12 . . .	1.15
4½ x 6½ . . .	60	11 x 14 . . .	2.15
5 x 7 . . .	65	13 x 16 . . .	2.40
5 x 8 . . .	65	14 x 17 . . .	2.80

When made with backs to open lengthways, an additional charge of ten per cent. will be added to the foregoing prices.

Now in stock.

GEORGE MURPHY,

2 Bond St., New York.

A RARE CHANCE.—Being desirous of going abroad, I wish to dispose of my gallery. It is one of the finest and best equipped in the Northwest. Centrally located, opposite the Post Office and the largest dry goods house, in fact, the best locality for doing a first-class local and transient business.

The studio is on two floors 20 x 80, has two skylights—top and side—fourteen feet square, facing north. About 35,000 negatives which yield quite a handsome revenue annually.

Will also dispose of my house, lot, barn, horse and carriage, etc., situated within twenty squares of the gallery in the best resident portion of the city. Population about 200,000.

Those meaning business will please direct for particulars

HARRY S. SUTTER,

Milwaukee, Wis.

FOR SALE.

1 8 x 10 View Camera.....	\$5 00
1 5 x 8 Camera with Stereo Attachment	5 00
1 20 x 25 Glass Bath Holder, wood outside.....	15 00
1 Sleigh.....	4 00
1 Circular Rustic Tree Seat.....	4 00
1 Wall and Gate Posts.....	7 00
1 Background with Tree.....	6 00
1 8 x 9 Interior Background.....	10 00
1 Daisy Glass Foreground.....	6 00
1 9 x 10 New Landscape Background, Tree in the Middle.....	10 00
1 7 x 8 Background Skating Rink, new	6 00
1 4 x 5 Background.....	3 00
1 8 x 10 Background, Shore and Water View.....	10 00
Small Plain Grounds, each.....	1 00
8 x 10 Printing Frames, each.....	25
8 x 10 Old Portrait Negatives, not re- touched, each.....	2
5 x 8 Old Portrait Negatives, not re- touched, each.....	1
1 11 x 14 View Box, extra fine.....	50 00
1 4 x 5 Fitz Lens.....	3 00
1 Pair Short Focus Zentmayer Lenses...	5 00
1 Pair New York Optical Stereos.....	6 00
1 6½ x 8½ Darlot Lens.....	6 00
1 11 x 14 Fitz Lens.....	10 00
View Lenses from \$3 00 each, upwards.	

PACH BROS.,

841 Broadway, N. Y.

BUY BURNET.

TO PHOTOGRAPHERS.

We take pleasure in announcing that Mr. HENRY G. THOMPSON, formerly of the firm of Douglass & Thompson, and late Vice-President of the corporation of N. C. Thayer & Co., will assume charge of our Photographic Stock Department, at 208 State St., Chicago, after March 1st, where a full line of photographers' specialties of every description will be kept on hand. At our Philadelphia branch the same assortment will be carried. Soliciting the continuance of your esteemed patronage, we are

THE BLAIR CAMERA CO.,

BOSTON . . . PHILADELPHIA . . . CHICAGO.

1886.—February 6th wanted. Copies of the PHILADELPHIA PHOTOGRAPHER for Feb. 6, 1886 wanted. A copy of 1886 *Mosaics* will be given for each such number sent to this office. EDWARD L. WILSON.

ART OF MAKING PORTRAITS IN CRAYON  
ON SOLAR ENLARGEMENTS.

By E. LONG.

SECOND EDITION.—NOW READY.

The *Photo Times* says: "The second edition, rewritten and enlarged, of this popular hand-book for crayon artists, has recently been issued. The first edition of this book being small and published rather as an experiment, many important points on the subject had to be treated briefly. But that edition meeting with such a warm reception and selling so rapidly, the author resolved to enlarge the second edition and give his readers the benefit of the knowledge which he had since gained of new materials and a fuller description of his methods of handling them. The little work treats solely of bust and vignette portraits, and its aim is to assist young artists who are struggling alone beyond the reach of competent teachers. After an introductory confidential chat with the students, we have chapters on the Solar Print, Crayon Materials and How to Prepare them; the Crayon Print, Interlining and Retouching; Hair and Beard; Drapery; Background; and Concluding Remarks." It is the best.

Price, in paper cover, fifty cents.

For sale by EDWARD L. WILSON,

853 Broadway, New York.

*Photo-Engraving, Photo-Etching,  
and Photo-Lithography.*

*Nearly ready. Price \$3, post-paid.*

*See advertisement.*



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reproduced in this popular  
form, at lowest prices,  
from prints or negatives.

A. Wittemann,  
60 Reade St., N. Y.

Get Wilson's "Quarter Century  
in Photography," \$4.00.

## PHOTOGRAPHIC MASKS.

The Rockwood Triplex Portrait Mask. One  
Dozen mailed on receipt of 50 cents. Also,  
manufacturer of all kinds of picture mats.

H. SENDEL,

710 Broadway, N. Y.

## — EUREKA! —

(BARGAIN LIST.)

1 25 inch Entrekin Burnisher . .	\$45.00
3 Bergner Stereo Cutters, each . .	15.00
1 Darlot $\frac{1}{2}$ size Portrait Lens, Rack, and Pinion Central Stops . . . .	14.00
1 $\frac{1}{2}$ size Lantern Objective, no name, good condition . . . . .	5.00
1 No. 2 Euryscope Lens . . . .	40.00
1 Pair (matched) No. 0 Euryscope Stereo Lenses . . . . .	40.00
1 18 x 24 Common-sense Tray, good as new . . . . .	3.75
1 Marion Hard Rubber Adaptable Drop Shutter, cost \$10.00 . . . . .	5.00
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The above bargains are offered for sale for  
cash and are all guaranteed to be in good work-  
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1125 Chestnut St., Philadelphia, Pa.

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WANTED.—The live photographer everywhere,  
to issue special-rate photo. checks in combination  
with our glass tablet photo mounts. Is new;  
takes at once.

We mount cabinet size prints for photo-  
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us. E. K. TALCOTT, 216 Northampton Street,  
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VIOLET LIGHTNING FLASH.—(Brutum Fulmen.)  
This compound is made by a new formula, and  
produces the most powerful actinic light yet dis-  
covered. It contains neither acid, chlorate of  
potash, nor animal charcoal. It oxygenizes  
more rapidly than any flash compound hereto-  
fore offered, and may be used on card-board or  
glass with safety.

Twenty grains is quantum sufficit for an ordi-  
nary flash (instead of forty to sixty grains, as  
stated on our copyrighted directions). Accord-  
ing to subject, distance, quality of lens and  
rapidity of plates used, vary the above quan-  
tity. A twenty-grain measuring-cup is sent  
with every bottle. Handle with care.

BUCHANAN, BROMLEY & Co.,  
Manufacturers,

Philadelphia, Pa.

JUST RECEIVED FROM ENGLAND,

PROF. W. K. BURTON'S NEW BOOK,

*Practical Guide to Photographic and Photo-mechanical Printing Processes.*

Price, \$1.00.

MARION & Co., Publishers, London.

The well-known author says, "The object of this work is to give practical instructions in the working of all processes which are in actual everyday use at this date."

The *Amateur Photographer* (London, Feb. 3d) says, "Any matter from the pen of Prof. W. K. Burton (of the Imperial University, Tokio, Japan) deserves and commands attention by all workers in photography. . . . We are sure it (this book) will be their constant reference-book."

Mr. Burton's capital papers in the *Photographic Times* have made him very popular in America, and his book will prove welcome to his many friends here. I have just received (too late for review) an edition for this market. Copies mailed on receipt of price.

EDWARD L. WILSON,  
853 Broadway, New York.

THE PLATINOTYPE for Photographers, Solar Printers, and all Copyists. Platinotypes are permanent, and a license to work the process costs very little. Send ten cents for sample portrait and book of instructions.

WILLIS & CLEMENTS,  
1112 Hunter St., Philadelphia, Pa.

Get Wilson's "Quarter Century in Photography," \$4.00.

IMPERIAL Negative Reducer, for either dry or wet plates. Manufactured only by GEORGE MURPHY, Sole Proprietor, No. 2 Bond Street, New York. Price per pint bottle, 80 cents.

EVERY gallery should have a Studio Register. It is complete, economical, and altogether practical. Send for a sample leaf and price-list to the Sole Agents, Smith & Pattison, Chicago.

It is a pleasure to know that all of the best photographers in the city of PHILADELPHIA are using Three Kings Albumen Paper. Price per dozen, 90 cents; per ream, \$32.00; second choice, per ream, \$24.00.

BUCHANAN, BROMLEY & Co., Importers,  
Philadelphia.

FOR SALE.—A direct printing solar camera, 14 inch condenser and 25 x 30 box, at a bargain.

Address HARDY, Photo Artist,  
Boston, Mass.

FOR SALE.—In a city, 30,000 population, A 1 photograph gallery. Cause for selling, bad health of owner, will be sold at a sacrifice.

A. M. TURNER,  
200 Main St., Norfolk, Va.

*Photo-Engraving, Photo-Etching,  
and Photo-Lithography.*

*Nearly ready. Price \$3, post-paid.  
See advertisement.*

TALCOTT'S PATENT GLASS MOUNTS.

NASHUA, N. H., March 13, 1888.

E. K. TALCOTT, Esq.

DEAR SIR: I desire to express my unqualified satisfaction with your very superior Patent Glass Mount. It almost invariably calls forth loud praises for its beauty, brilliancy, and novelty, from all whom I supply, and its undoubted durability makes it a valuable acquisition.

Yours respectfully,  
A. C. AUSTIN.

SAMUEL G. NIXON.

Portrait Artist,  
813 Arch St., Philadelphia, Pa.

Established December, 1878.

Photographic Enlargements supplied and finished in Ink, Crayon, and Water Colors. Terms on application.

TO PHOTOGRAPHERS.

N. B.—If a picture furnished by me is not satisfactory to your patrons, send it back and I will endeavor to correct it without extra charge.

S. G. NIXON.

THE best Position Chair ever introduced is the Celebrated "Queen Poser," manufactured and patented by Smith & Pattison, Chicago. Hundreds have been sold. Send for descriptive circular and price list.

BUY BURNET.

NEW SULPHITE OF SODA (Crystallized).—Price: In 5 pound cans, \$1.00, 1 pound cans, 35 cents, ½ pound cans, 25 cents. For sale, wholesale and retail, by

GEORGE MURPHY,  
No. 2 Bond Street, New York.

## TO PHOTOGRAPHIC MERCHANTS.

NEW YORK, September 1, 1887.

GENTLEMEN: We have now opened a *New York Depot* for the benefit of our Eastern patrons. From this depot orders will be delivered to any New York Freight, Express, or Steamboat office. Address M. A. SEED DRY PLATE Co., No. 2 Bond St., New York. A. R. HUISKAMP, Manager.

Get Wilson's "Quarter Century in Photography," \$4.00

TO FERROTYPERS.—The Eagle Ferrotyping Colodion. Use it for fine effects.

GEORGE MURPHY,  
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HANCE'S Ground Glass Substitute makes a splendid backing for window transparencies and glass stereographs. It softens the light wherever used.

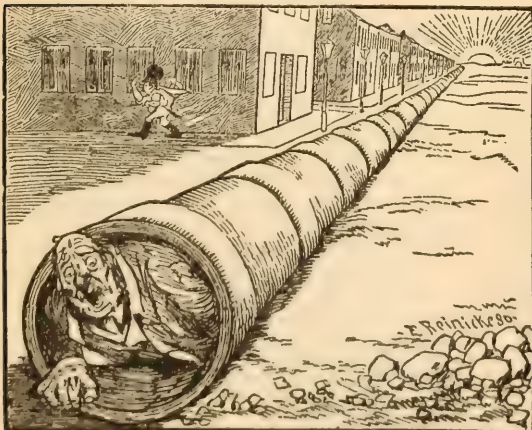
THE PLATINOTYPE for Amateurs; simple to work, and the results artistic and beautiful. Send ten cents for sample landscape and book of instructions.

WILLIS & CLEMENTS,  
1112 Hunter St., Philadelphia.

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Buy Cloth Bound. **1 \$ 1** Bound in Cloth.



The Authors' edition of this splendid annual is bound in splendid green cloth, gilt, at \$1.00. Send direct and get a copy, and preserve for all time the wonderful store of good it contains.

**1120 IN ONE DAY.**

On Monday, December 12th, one week after I thought the trade had been supplied, I was surprised to receive additional orders for 1120 more copies. It is a marvel to me where they all go, but a

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**EDWARD L. WILSON, Publisher,**  
**853 Broadway N. Y.**

ALSO OF ALL THE DEALERS.

## SITUATIONS WANTED.

*No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.*

By a good, reliable retoucher, can assist at printing. Address, C. Hoffman, 733 N. 9th St., Reading, Pa.

As a good general workman; can operate, retouch, and print. Address, H. W. Ostrum, Pulaski, N. Y.

By a young man with six months experience in photograph business, to finish his trade. Address with particulars to W. K. Riter, 704 Fairmount Ave., Philadelphia.

At liberty May 15, 1888, a strictly first-class printer and toner; best of city references; state wages and full particulars in first letter. First-class gallery only. Address, C. E. Dudley, 649 Third Ave., New York City.

By a good printer, toner, and general worker, where I can learn more in operating. Address, McLean, Photographer, 19 Poplar St., Boston, Mass.

By a young man 18 years of age, with good references, as printer and toner, can also assist in operating; has had three years' experience; can speak German and English; will work cheap. Address, Jno. F. Braun, P. O. Box 123, Waterloo, Ill.

# GRAY'S PERISCOPE

Is the Cheapest and Best View Lens in the world. Write for particulars.

R. D. GRAY, Manufacturer,  
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**C. H. CODMAN & CO.**

**Photographic Stockdealers**

Sole Agents for the NEW ORTHO-PANACTINIC LENS, Moor's Photographic Enamel, the Perfect Mounting Solution for mounting Photographs on the thinnest mount without wrinkling.

New England Agents for American Optical Co.'s Apparatus. The best in the world. Send for Price List.

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BOSTON, MASS.

BROWN & GOLDSMITH'S

## "SUCCESS" SENSITIZED PAPER PRESERVATIVE.

A Great Boon to Photographers. Patent applied for.  
Simple, Reliable, Cheap.

The SUCCESS PRESERVATIVE has made a grand record the past year. The following testimonials must convince the most skeptical of its merits:

**From FALK, 949 and 951 Broadway, New York City.**

Your Preservative is voted a big success here, where for the past few months my printers have put it to a severe test and found it to be all you claim for it. Next to the dry plate it bids fair to rank as the greatest economizer of labor and material lately introduced to the fraternity, and if in the future it proves as satisfactory, its praises will know no bounds.

**From J. H. KENT, 343, 345 and 347 State St., Rochester, N. Y.**

The sensitized paper preservative when used in the tin apparatus is a great success. The paper keeps in perfect condition for two or three weeks. Instead of silvering paper every morning as heretofore, we now silver large quantities at a time and use it as required, thereby saving great loss, by paper spoiling before we were able to print it. You certainly are entitled to the thanks of the fraternity for this valuable discovery.

**From J. F. RYDER, 239 and 243 Superior St., Cleveland, Ohio.**

Your paper preservative is a valuable means of accomplishing the desirable ends of paper saving, time saving and money saving. In my own practice I find it to be all you claim for it.

Price, 35 Cents per Can, or \$2.00 per Package of 6 Cans.

" 20 " " Box, small size, for Amateur's Outfit.

The following houses are our principal depots:

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GEORGE MURPHY, New York, N. Y.  
WILSON-HOOD-CHEYNEY CO., Philadelphia, Pa.  
SHEEN & SIMPKINSON, Cincinnati, Ohio.  
SMITH & PATTISON, H. J. THOMPSON, SWEET,  
WALLACH & CO., Chicago, Ill.

H. A. HYATT, J. C. SOMERVILLE, St. Louis, Mo.  
MULLETT BROS., Kansas City, Mo.  
JAMES DOUGLASS, Jacksonville, Fla.  
S. C. PARTRIDGE, San Francisco, Cal.  
GLEN PHOTO STOCK CO., SHERMAN'S PHAR-  
MACY, Atlanta, Ga.  
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FOR SALE BY ALL PHOTO STOCKDEALERS.

GOLDSMITH & MOFFITT, Sole Manufacturers, 374 Main Street, Springfield, Mass.



This cut illustrates the apparatus that will do the work successfully.

**BUY THE BEST!**

No other will give you half so much satisfaction.

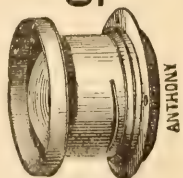
FOR DRY PLATES  
 ANTHONY'S Patent Perfect PLATE HOLDERS  
 ARE SUPERIOR TO ALL.

**APPARATUS OF ALL KINDS.**  
 Chairs,  
 Neg Boxes,  
 Camera Stands  
 Printing Frames,  
 Etc., Etc.

DALLMEYER LENSES,  
 SUCCESS CAMERAS,  
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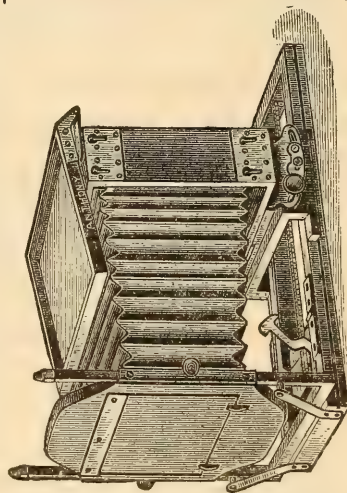
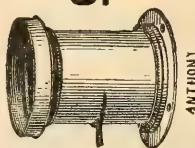
THE NOVEL CAMERAS,  
 SCHMID'S DETECTIVE CAMERA

SEND  
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 CATALOGUE,  
 AND GET  
 THE BEST  
 OF Everything.

**DALLMEYER****FOR WET****OR DRY****WIDE-ANGLE RECTILINEAR**

E. A.

SINGLE COMBINATION, RAPID,  
 WIDE ANGLE, PLATYSCOPE,  
 PORTRAIT AND VIEW LENSES.

**DALLMEYER****NOTHING****COMPARES****RAPID RECTILINEAR**

THE FAIRY CAMERA.  
*The Lightest and Best for Out-door Work.*

FOR EITHER DRY OR WET PLATES  
 NOTHING EQUALS

**THE BENSTER PLATE HOLDER.**

O. I. C.

PORTRAIT, COPYING, CLIMAX  
 PORTRAIT, GEM, AND  
 COMPACT VIEW CAMERAS.

**E. & H. T. ANTHONY & CO. NEW YORK.**  
 --591--  
 BROADWAY,

# THE CRAMER PLATES

UNEQUALLED

FOR

SPEED AND FINE QUALITIES

FOR

Landscape, Portrait,

AND

Instantaneous Work.

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Full and Comprehensive Instructions for  
Working in Each Package.

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FOR SALE BY ALL DEALERS.

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ST. LOUIS, MO.,

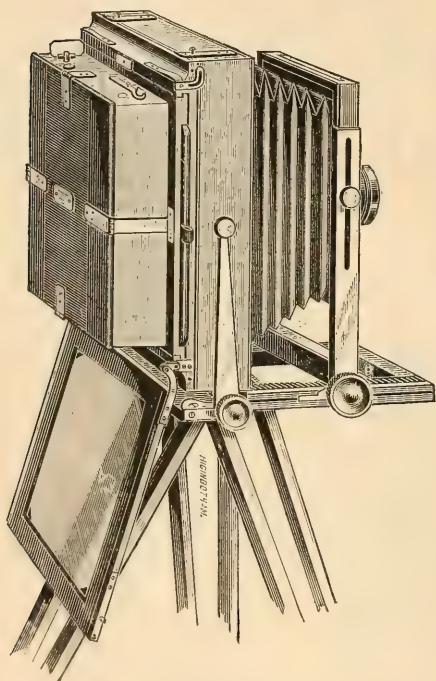
U. S. A.

# EASTMAN'S INTERCHANGEABLE VIEW CAMERA

WITH THE NEW PARALLEL BACK.

The new back is the only perfect device for both Glass and Paper Dry Plates. Don't fail to see an Eastman Camera before buying an outfit.

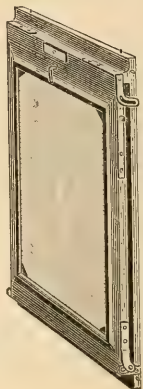
NOW READY. SEND FOR ILLUSTRATED CIRCULAR.



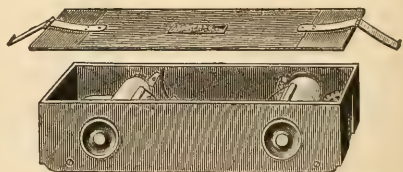
Ground Glass Dropped to admit  
Roll Holder.



Ground Glass Open for Glass  
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Ground Glass Closed for  
Focusing.



Eastman's Roll Holder.

## EASTMAN'S ROLL HOLDER MODEL OF 1887.

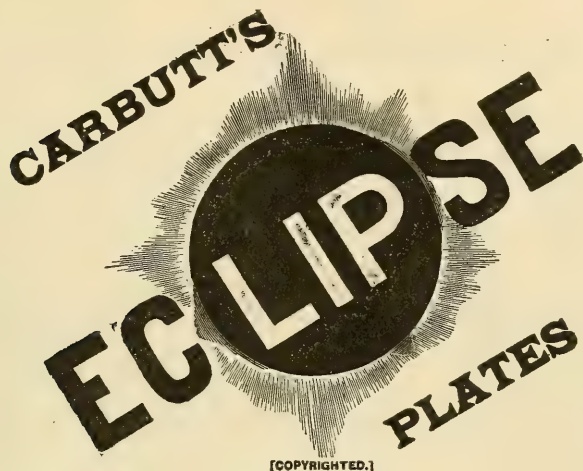
"A better thing for less money." Write for circular.

### THE AMERICAN FILM

has been perfected, and is now offered as a complete substitute for glass in View Photography. If you doubt its practicability send two 2-cent stamps for sample negative and copy of our pamphlet on "Recent Advances in Film Photography."

EASTMAN'S STANDARD PERMANENT BROMIDE PAPER leads the world. Unapproachable for *Brilliant Chemical Effects*. For sale in every civilized country.

THE EASTMAN DRY PLATE AND FILM CO.,  
SOLE MANUFACTURERS,  
ROCHESTER, N. Y., and LONDON.

ESTABLISHED  
1878.FIRST DECADE  
1888.

# CARBUTT'S ECLIPSE

DRY PLATE, Sen. 27.

This new plate for public favor is the result of a series of careful and analytically conducted experiments during the winter, and are specially intended for Rapid Studio Exposures, Detective Camera, and Instantaneous work, large Direct Portraits, and Group Negatives, and Night Photography by the Magnesium Flash-Light, for which use they have been most severely tested, and found to respond in every instance to the most exacting trials, yielding negatives unapproachable in speed and quality by any other plate now on the market.

Satisfy yourself on this point by a trial order from your dealer, or we will send **one dozen** on receipt of list price, to any address, **express charges prepaid**. They are as easy to work as our well-known Special Instantaneous Sen. 25.

**ONCE TRY THEM AND YOU WILL CONTINUE TO USE THEM.**

*For Sale by all Dealers in Photo. Materials.*

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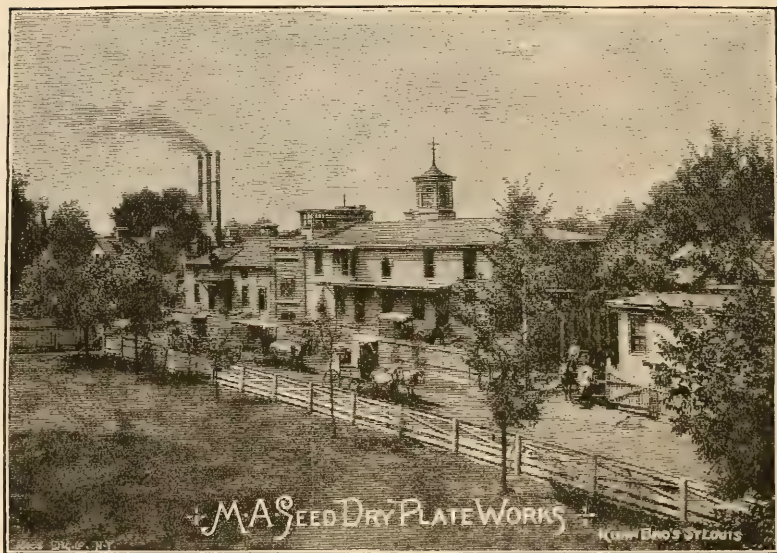
First Manufacturer of Gelatine Dry Plates in the United States.

KEYSTONE DRY PLATE WORKS,

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ORDER THROUGH YOUR DEALER.  
**Extreme Rapidity.**

Unimpaired Quality.



Wet Plate Effects in Printing.

We have now succeeded in making a plate of a *higher degree of sensitiveness* than ever before, without sacrificing any of the fine qualities for which our plates are so justly famous.

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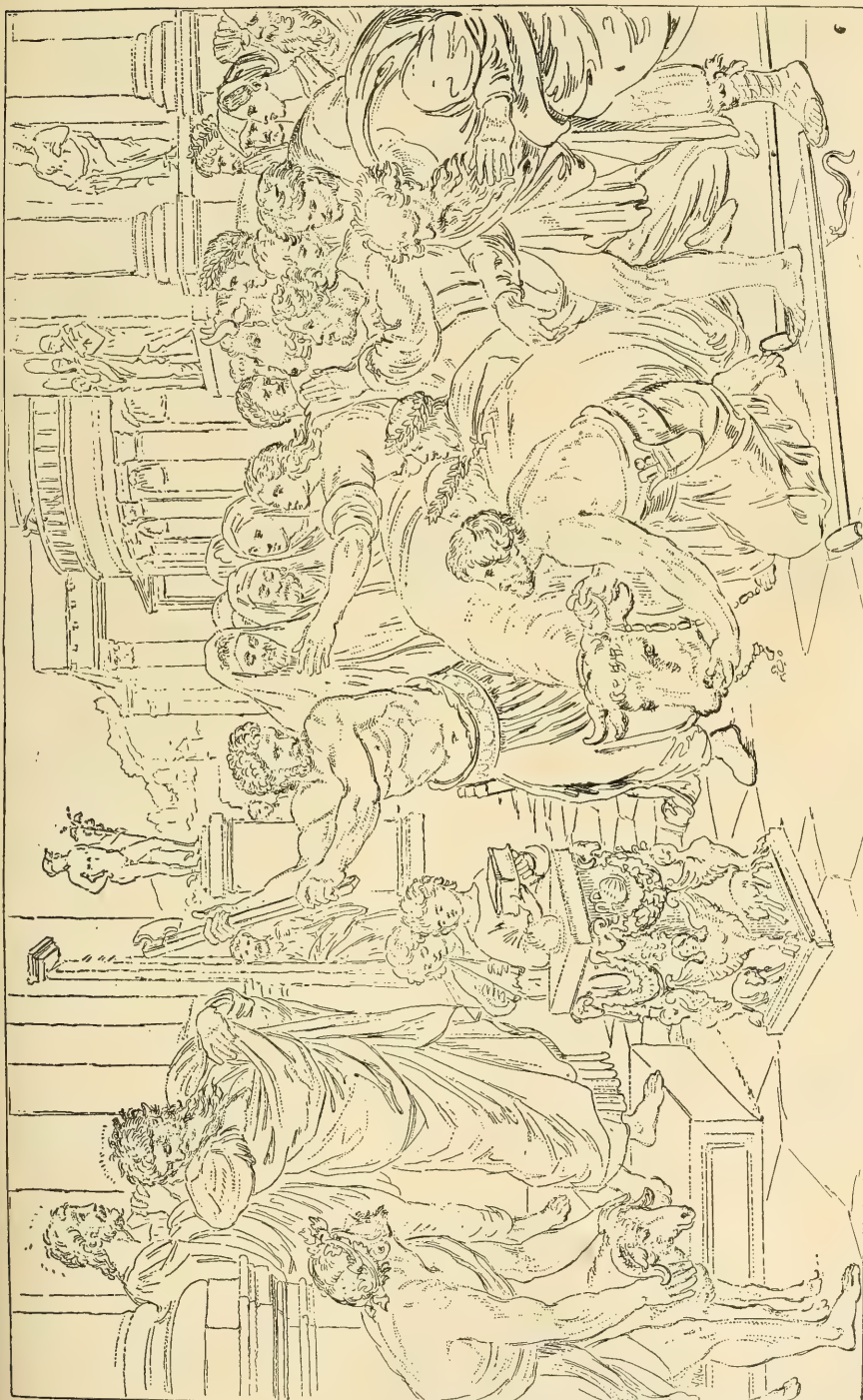
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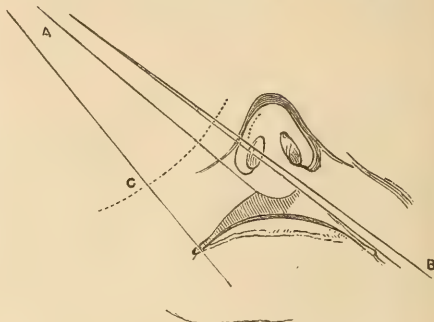
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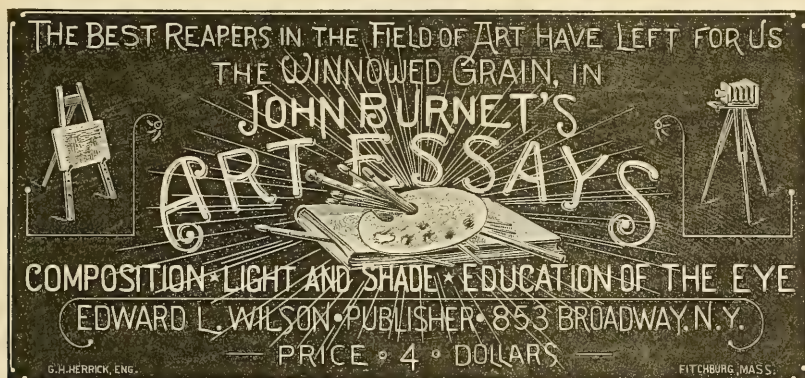
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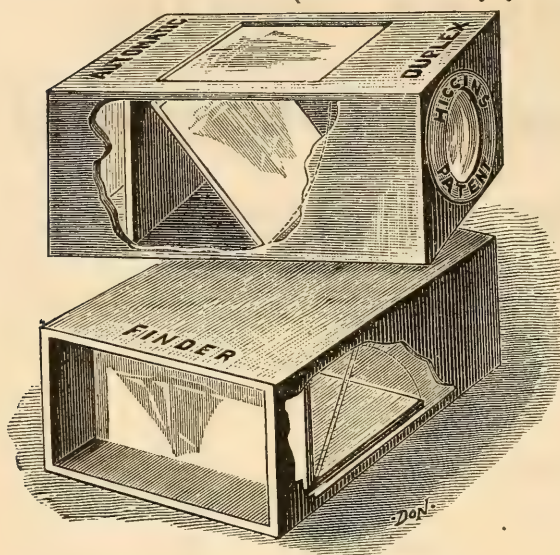
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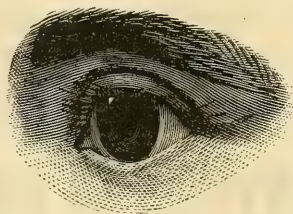
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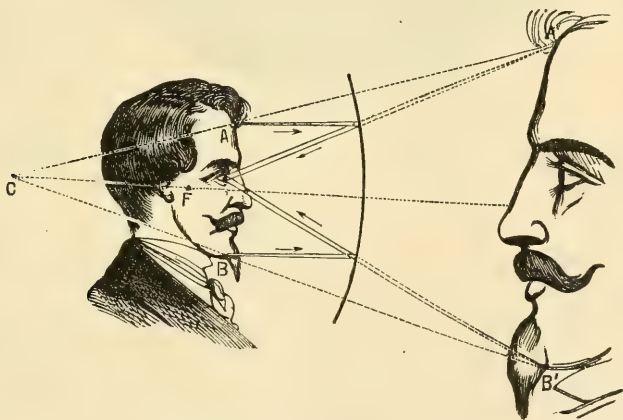
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In making the above claim that this work is a complete text book of the art of photography, the author has not overstepped the mark, for we have seen nothing to compare with it in clearness and attention to details and manipulations. The author's easy style is already well known to those interested in the subject, and goes a long distance toward making the "*Quarter Century*" an interesting volume, entirely independent of its large store of information. After an outline history of the subject, the theory of photography is treated of; then follow the subjects of light, the camera and lenses, the diaphragm, artistic principles, indoor and outdoor work, chemicals needed, negative making, printing, photo-engraving, slide making, etc., etc., with a host of details worked in under the proper headings. Isochromatic photography is treated of in a separate chapter, and its special value in certain classes of work noted. The more prominent features of the work are the chapters on lenses, art principles and the making of paper and film negatives. The treatment of this last subject will be found of especial service to the travelling amateur, who is often deterred from adopting the use of flexible negatives simply because he can find little reliable information concerning their peculiarities. We know of several cases of amateur enthusiasts in the art who have tried the "films," and finally returned to the old stand-by glass plates, because of difficulty in handling the later process. By the light of such information as Mr. Wilson has supplied, this difficulty largely disappears, and the process is simplified by giving a detailed understanding of it. The arrangement of the book is exceptional in one respect that greatly increases its value for general work. The main text is supplemented by foot notes in smaller type, comprising quotations from all our leading writers on the subject, and in many cases containing original methods that have not yet become generally known to photographers. This collection Mr. Wilson has been in an excellent position to make, as editor of the *Philadelphia Photographer*, and the readers of the "*Quarter Century*" will be more than repaid by a close comparison of the methods presented.—*Iron*.

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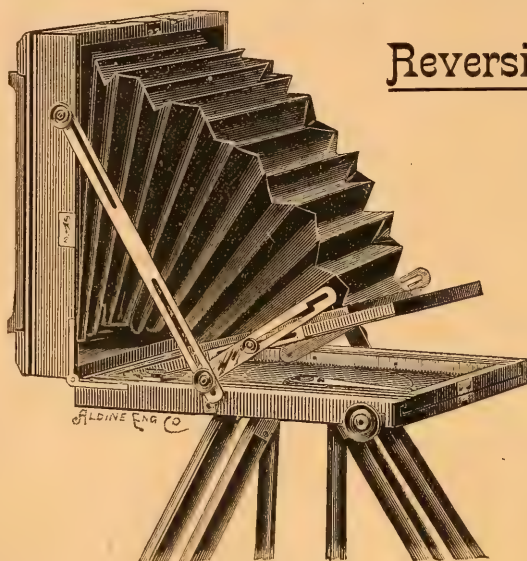
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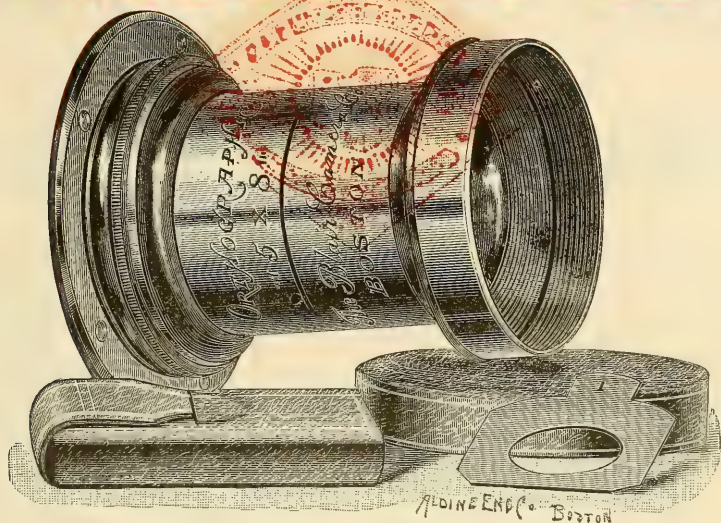
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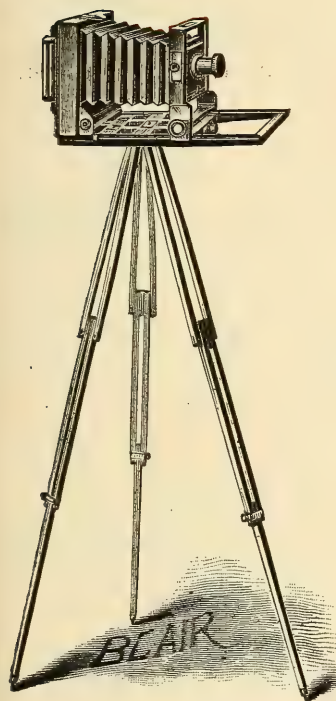
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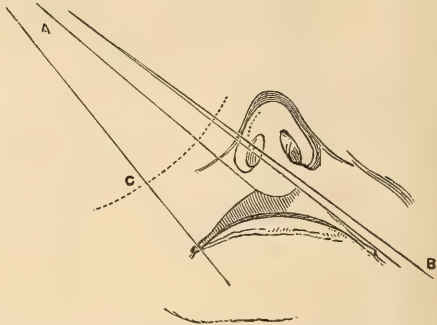
WHILE all parts are of great value to the student, we think the part on "Education of the Eye" will be found of most practical value to the photographer, as that organ is very deficient, and much in need of education.

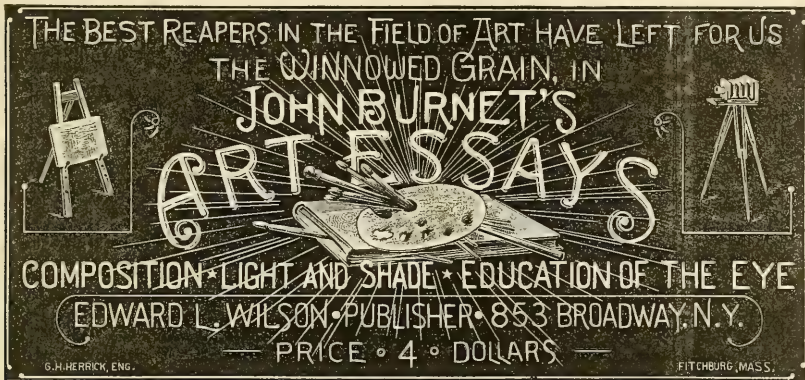
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(See next page.)





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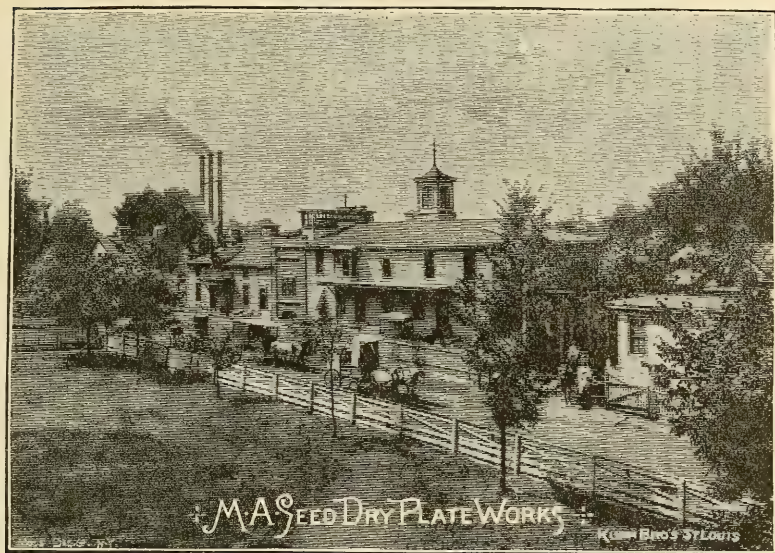
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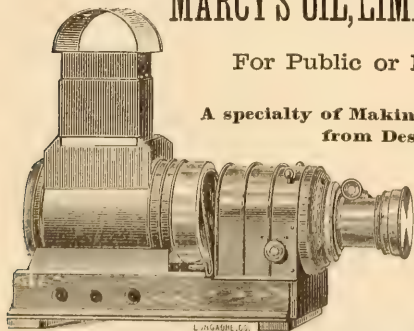
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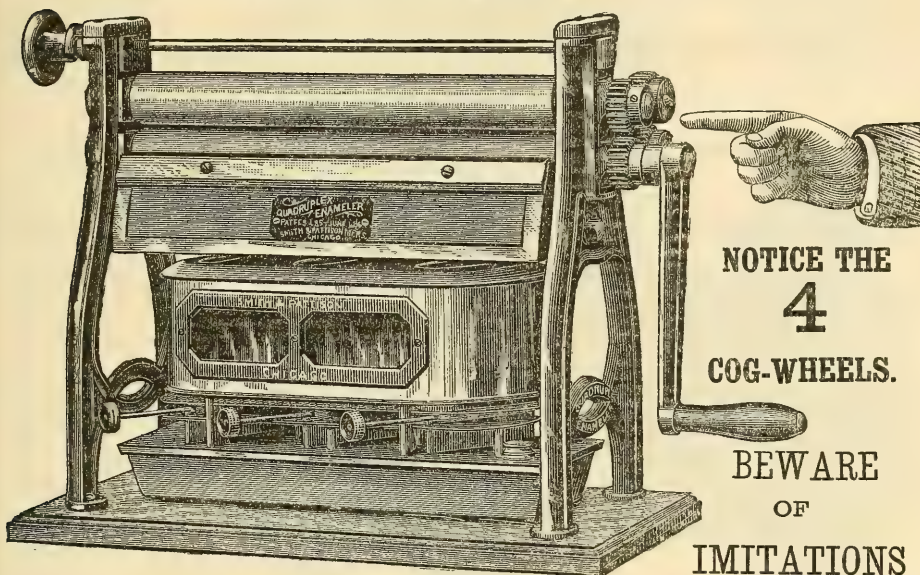
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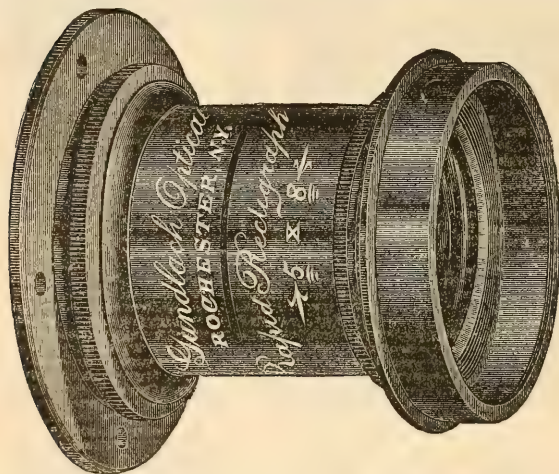
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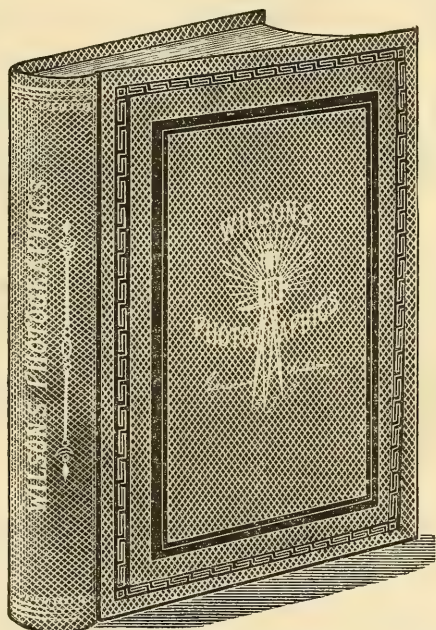
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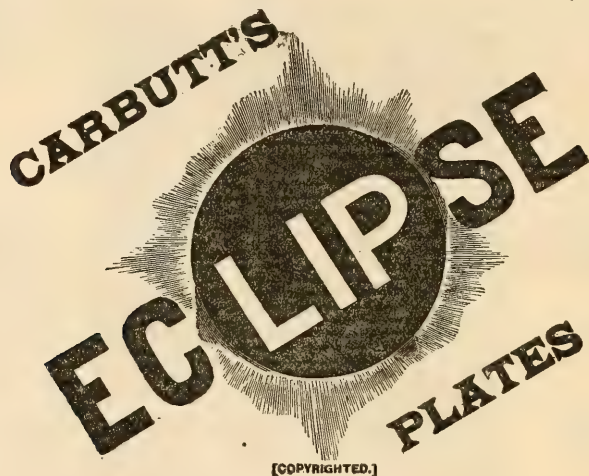
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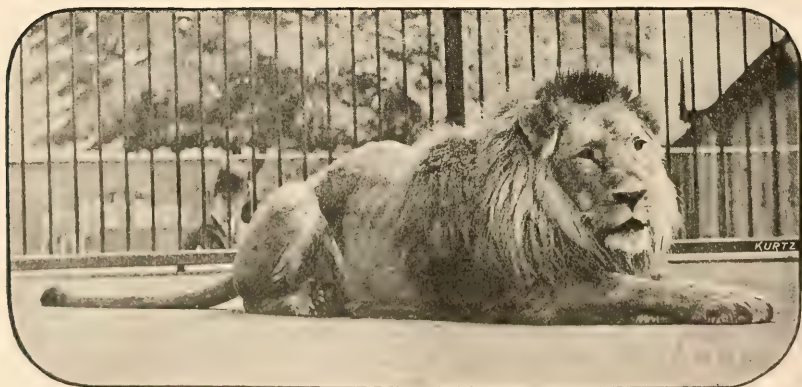
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*A. R. DRESSER, London*

*"Meissenbach" engraving by*

*W. KURTZ, New York.*

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXV.

MAY 19, 1888.

No. 322.

## OUR PICTURE.

WE expect the acute readers of THE PHILADELPHIA PHOTOGRAPHER to consent to general points of interest in the illustrations of "Peace" and "War," which embellish our present number. In the first place they are examples of careful and excellent photography, both artistically and technically. Next, they are fine enlargements from lantern slides, and, lastly, they present examples of the latest and highest style of zinc-etching—or, in other words, they are half-tone zinc-etchings enlarged in America from lantern slides made in England, without any use being made of the negatives except to produce the transparencies. At this rate, it will easily be seen, the whole world can be reproduced and reprinted in the letter-press, with descriptions, without the touch of an artist's pencil, or the thrust of an engraver's tool.

The story of "Our Picture" is this: A few weeks ago Mr. A. R. Dresser, of the London Camera Club, presented us with a number of lantern transparencies made from his own beautiful private negatives. They were in our pocket one day when we were between our office and our dwelling place, and we made a halt at the studio of Mr. Kurtz, on Madison Square. Pleased with our foreign gift, we shared their beauties with our old friend, who is an art-gourmand. In his laconic way, he said, selecting "War" and "Peace," "leave these two with me a few days, and I will show you something." The result was the reception of the fine half-tone

zinc-etching from which the prints have been made for "Our Picture." As we have said, they are considerably larger than the originals, and yet there is not the slightest grain of coarseness, or the tiniest loss of the detail and delicacy seen in the original transparencies, than which nothing can be more exquisite.

Mr. Kurtz has, in connection with his famous portrait studio, an immense establishment for orthochromatic and zinc-etching work, and is reproducing some of the finest paintings with marvellous preservation of light and shade, half-tones and color values. We have arranged with him for several fine reproductions for "Our Picture," and some rare treats are in store for us all. We do not see how any process is to reproduce anything in a more masterly manner than Mr. Dresser's picture of "Peace" is done. There is every gradation there from black to (almost) white, and yet what lovely detail there is through all. Could the most careful printing—could anything but a glass picture approach it? The gentleman who represents "War," seems, with head turned quizzically on one side, to be meditating upon this very question. He, too, is fine.

In the light of such results as this being possible, most timely is the production of Mr. Wilkinson's book on *Photo-Engraving, Photo Zinc-Etching, and Photo-Lithography*. There is a general awakening on the subject all over the country. Photographers are having demands upon them for reproductions in quantities—expeditiously and cheaply—thus offering them a new business;

and the amateur has opened up to him a new and fascinating department by which he, too, can share the pleasures of his productions with more of his friends, and find more frequent use of his works for illustration.

Surely, zinc-etching is the coming process, and Mr. Wilkinson will be blessed and rewarded for his very clear and satisfactory manual.

On another page we have further articles on this new reach of our art, and an article by Mr. Dresser, on "Development," which is as bright and clear as his lovely transparencies are.

A little story on zinc fits right here.

In July, 1883, or thereabouts, Mr. Kurtz associated himself with Mr. F. A. Ringler, for the purpose of perfecting the process of zinc-etching, under the firm-name of The Electro-light Engraving Company. The now almost universal style of newspaper illustration was then in its infancy, and the practical difficulty of making at short notice, and in an artistic way, a cut which would stand the wear of a daily printing press, was then so great as to discourage many enterprising journals that would gladly have inserted pictures. Mr. Ringler succeeded in overcoming those difficulties, and the Electro-Light Co. was the first practical establishment to supply newspapers with engravings on zinc. This success was possible from the fact that Mr. Ringler was a manufacturer of printing plates. The leading journals and photo-engravers of the United States have now almost universally adopted the zinc process.

When zinc plates were first talked of by practical printers they were ridiculed on the ground that they would tear the rollers of the press, or because it was claimed that the acid undercut the outlines and gave blurred impressions. Mr. Ringler's plates did not tear the rollers. By his process the zinc was not undercut by the acid, and his plates could be and were made in a twentieth of the time required by the older process. He set up a dynamo and electric light plant in his establishment, and became independent of day and night, sunshine and cloudy weather.

Managers would come to him and say: "How soon can you get out these cuts?"

At the corner of Ann and William streets, he sometimes made a hundred plates in between two and three hours! Such wonderful results were bound to bring in great returns of both money and reputation, and in the present establishment on Barclay street and Park Place, he supplies his cuts to every class of patrons, from the daily or weekly newspaper and trade publication, to the highest grade art magazine.

The practical printer and the pressman who have labored often for hours to "bring up" a poorly finished electrotype, are the first to appreciate at its true worth the Ringler process, and the revolution it has wrought in illustration.

For relief script and line engraving publishers of school books, have found the Ringler script plates invaluable. Indeed, illustrations of any and all kinds, for all printing purposes, are turned out by this process with a facility and finish unknown before, from the newspaper outline cut to the directly reproduced painting, photograph, or wood cut, and the steel tipple for fine art printing.

Mr. Ringler is president of the New York Electrotypers' and Stereotypers' Association, and ranks in his art foremost in this country.

We must not fail to call attention also to the other fine examples of zinc work which illustrate Mr. Treat's article, made by the Moss Engraving Co. directly from bromogelatine prints, without any use of the negatives. They are also very wonderful. Truly zinc-etching is taking a great rise.

---

## SOME ART PRINCIPLES APPLIED TO PHOTOGRAPHY.\*

BY A. J. TREAT.

(Continued from page 276.)

### PART III.

#### ANIMALS.

There is a large field for animal studies. We seldom see a good picture of that most faithful of man's friend, the dog, though there are many varieties of him. Yet I

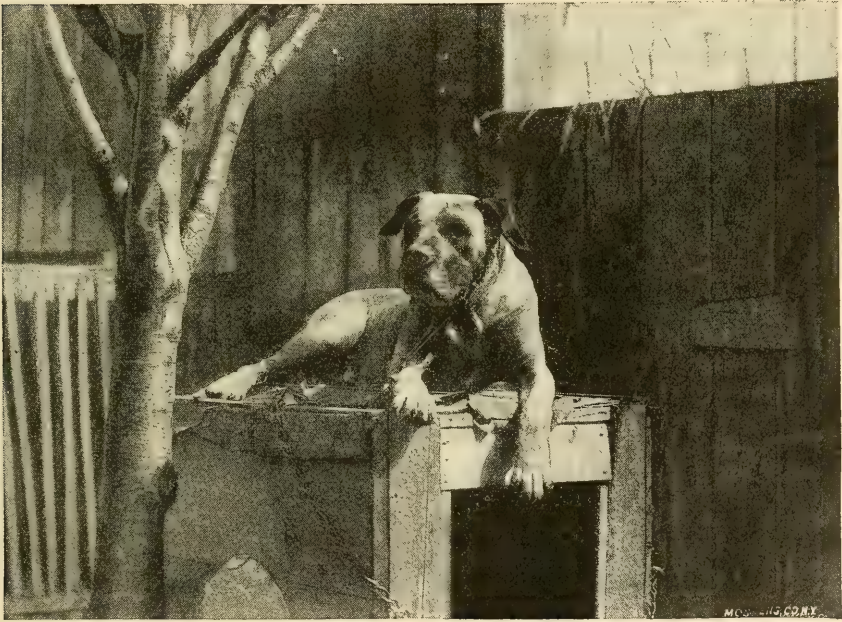
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\* Read before the Pacific Coast Amateur Photo Association.

want to show you an animal study that is a combination of good qualities, Mr. Lowdon's "English Mastiff" (Fig. 1). First notice the composition. See the texture of the hair. The illumination an art critic would call play of light. Notice that the focus is sharpest on the principal object, the window and other minor details not being as well defined as the dog, thus helping to give the picture, as a whole, great breadth. It is very patent that if you could see the details of the boards in the background at the right, the all important object would be

landscapes where cattle can be found, and in such places as will make most interesting and pretty studies. But let me give this word of warning. Do not make photographs of animals, expecting that because they are animals they will make good pictures. Arrange them by herding, or allow them to arrange themselves, which they will do in time, as they are constantly changing their positions and attitudes. Walk around them and select the best view. Like men and women they do not at all times appear at their best, either in position or expres-

FIG. 1.



English Mastiff. By W. H. Lowdon.

made less prominent. At our first exhibition an English gentleman remarked that this picture very much resembled one of Landseer's paintings. There is a fault very common with photographers, when taking animals, of having the camera so high that the lens points downward upon the subject, giving a very unnatural and inartistic effect, by distortion, either of the subject or the back ground.

Within twenty miles of this city there are

sion. The position you desire you may have to wait for or force them into, for they do not, as you will find, always comprehend the English language. The desired attitude and expression can often be got by attracting the attention or awakening the curiosity of the subjects. Matilda Lotz, the animal painter, does this, when painting dogs, by placing in a cage a rabbit one day and perhaps a guinea pig the next, by way of variety. Once while on a jaunt to Angel

Island, three of us made a photographic assault upon two cows. We took them front and flank, and rear. A look of attention was obtained by the flapping sound of a focussing cloth rapidly shaken up and down by Mr. Partridge, somewhat after the manner of the maid-of-all-work when she manipulates a sheet out of a bed-room window. I have found this a useful idea, and whether original with Mr. Partridge or not, or whether he took lessons from some comely housemaid or not, I here give him credit for it.

When taking horses some photographers obtain an attentive look by dropping beans into a tin pan, or by waving a handkerchief

First, there are the scenes so grand that they require all the space for themselves, and in which a figure is not necessary and perhaps would be out of place.

Second. The views in which the figures of men or animals are used to balance some part of the composition and lend additional interest to the scene, the figure or figures being the less important.

Third. The scenes in which the figures are all important and the landscape subservient; what are called *genre* pictures. (Fig. 2.)

Says Hamerton: "Every landscape painter knows by experience the wonderful power

FIG. 2.



"Mumble-the-Peg." By A. J. Treat.

tied to the end of a stick. In taking animals of any kind one must make haste slowly. Sheep, for instance, are very picturesque, and look well when not too closely huddled together; but they frighten easily, and get out of range with surprising rapidity. It is well to put a plate holder under the coat, keep the head under the focussing cloth, and slowly move the camera up to within range, every movement of limb being deliberate.

#### FIGURES IN LANDSCAPE.

For the sake of convenience, we will divide outdoor scenery into three classes:

of attracting attention that is possessed by any figure in a landscape, however insignificant its size, however ordinary its appearance, however trifling its action." These remarks refer especially to scenes in which the figures are subservient to the landscape. Most every one has observed, particularly when in the country, that the most commonplace and monotonous scenery is immediately lighted up by the presence of figures. This effect is most apparent when the figures are at a distance, and also when they are so dressed and lighted and placed that they are in relief against a background suitable to

the color of their clothing, as light colored garments amongst dark foliage or foregrounds, and dark clothing in fields when everything is light in color, as during the harvest time.

#### INCIDENT PICTURES.

*Genre* and incident as applied to art mean nearly the same. *Genre* is from the French, and in the art sense signifies incidents from everyday life. "Incident picture," is a term sometimes used instead of *genre*. Possibly it could be applied to historical paintings, when *genre* could not be.

In incident or *genre* pictures the story must be well told, and the object of the presence of the figures readily apparent. They should tell at once by their pose and expressions what they are doing, as figures do not belong in a picture when they suggest nothing and do not explain their presence. The paintings by the modern school of English artists do not, as a rule, it has been said, sufficiently explain themselves. For instance, the painting by Sir Noel Patton called "In Memoriam" represents an incident of the Sepoy Rebellion, but neither the painting nor the title tell the stranger to incidents to the Sepoy troubles what the artist intended they should, and a description is necessary before the picture can be thoroughly understood. This is wrong, for art is more than national and should have no limit. An artist ought to paint for the world, and not particularly for his own country or people. The French are more dramatic in their work than the English, and their paintings are generally stories in themselves. The "Tale of the Missionary," by Vibert, is a good example of this. The title is sufficient to give the key, after which the painting can be translated by any one.

The four rules that apply to landscape are equally applicable to incident pictures. There should be breadth, that the figures will not appear hard in outline and please so well when all are taken together as when looked at individually. There should be unity—the various figures joined together by contrasting lines and shadows. There should be harmony, a particular figure being most prominent, the others not conflicting with it but

rather helping it. To have variety as against monotony no two figures should have exactly the same pose of body or expression of face. There should be opposing lines, as curved ones against straight ones, and shadows contrasted against lights.

The pyramidal form is well adapted to figure composition. In carrying out the laws of balance and contrast many more pyramids can be made in the same group, thus giving increased variety and interest.

When figures are to be posed, first decide what they are to do, next their position in the scene, and then what they are to wear. This is of importance, for the dressing should be in harmony, not only with the pose and action of the figures, but with the character of the landscape as well. If you are to arrange a group against a background or distance composed mostly of half tones, then the dressing of the models should be dark else they will not be clearly defined. If the dressing is dark in coloring and the landscape light, or *vice versa*, then it will be more prominent by contrast and intensify the general effect of half tone in the landscape. There is hardly a figure in Robinson's series of pictures that is not dressed like the others—the light colored overdress and one corner of an apron tucked up under the belt, and the figure topped with a sun-bonnet seems to be with him, a trade mark. A photographer, however, has to use ingenuity when making a number of pictures with figures in them, so as not to have them similar. He has only black and white at his command, while a painter can get variety by his colors, though the costuming of his figures may be similar.

Fitness in costuming ought to be strictly observed. An Italian peasant with French boots is not consistent. If a picture is made by the sea, then the figures, generally speaking, should suggest the sea.

Old clothes are much better than new, because they cling to the figure and thus make it more graceful. A newly starched calico is painfully stiff in a photograph, but becomes good material after being worn until it is shockingly soiled. Avoid ruffles on the skirts of dresses to be worn by models representing the working class. Have their gar-

ments appear as if they really were the clothes of poor people.

#### BREADTH.

I repeat what I said in the first part of this paper on this topic in order to introduce Mr. E. L. Wood's splendid "Alders" here as an example, viz.:

Breadth is the requisite most difficult to

should be vivacious, or scowling when it should be pleased, the story is poorly told.

#### ACTION.

The art term *action* may be described as intercepted motion. It is to the figure as expression is to the face, and is best shown in instantaneous pictures where the subject is unconscious of the presence of the camera.

FIG. 3.



Alders. By E. L. Wood.

describe. A picture has breadth when it pleases as a whole. It is the suggestion of atmosphere or ærial space; the feeling that it is possible to go into the picture and around the objects represented. It is the suggestion of broadness as against flatness and excessive sharpness of outline.

I do not see how I could obtain a better illustration.

#### EXPRESSION.

Figures may be rightly placed, dressed, and grouped, but if the expression of the faces does not accord with the story to be told, the picture will lose its interest. The expression on the face of a prominent figure gives the key to the incident. If it is sad when it should be gay, vacant when it

In posing it is often necessary to exaggerate that the action may be readily apparent. Seen from a slight distance, a man carrying a heavy burden might not suggest the weight of the load he is carrying unless he is bent forward and to one side. Nor would a person walking show action unless the figure was seen when one foot was advanced and the body slightly bent to that side, for one might be standing with one foot in front of the other and yet not be walking.

"Motion," says Leonardo da Vinci, "is created by the losing of due equipoise, that is by the inequality of weight, for nothing can move of itself without losing its centre of gravity, and the further that is removed the quicker and stronger will be the motion."

In the study, "A Morning Ramble," you will see one foot advanced beyond the other as in the position of walking, and the body slightly inclined to that side. The rear foot, however, is wrong, for it is nearly at right angles with the body, whereas it should only be at that angle natural to the person when toeing out. To keep from laughing the model bit her under lip, which spoiled the expression of what is naturally a very pretty face. In taking the picture called "Cross Purposes," showing two boys trying to drive a cow, one pulling with a rope and another urging with a stick, I had great difficulty in getting the required action. The cow would move when the boys were not ready, and the boys themselves could not take those positions which suggested the proper action without appearing strained and unnatural. Becoming tired of trying to pose them, I finally told the first boy that when I yelled he was to step forward and pull hard on the rope, looking back at the cow. The other was to step forward also and hit the beast. The little fellow was to watch them. I stepped to the camera and gave a whoop. As the first boy pulled hard on the rope and the other raised his stick to strike, I squeezed the bulb, the shutter dropped, and the picture was made. It may be said that the effect of figures properly posed and taken by time exposure, is generally better than when they are taken instantaneously, for then the action is apt to be exaggerated and become grotesque. There is not that opportunity to study the arrangement which is necessary for good effects.

#### NEW FIELDS.

Almost all that is possible has been done with the water craft of our bay. Compared with those pictures they send us from the East they are far superior, not only in effect of light and shade, which may be due to our clearer atmosphere, but in composition and general effect. This effect is largely due to the water motion of our bay giving greater variety and action. A better example of this can hardly be found, than "A Breezy Day" (Fig. 4), by Mr. W. H. Snowden, to which I made allusion in the first part of my paper (P. P., April 7th.)

But there is a place, neither land nor water,

where plenty material exists for picturesque effect, and that is along the wharves. Take, for instance, Mr. Gibbs's poetic picture "Wharves after Sundown," with its fine arrangement and its cloud effect, the slender spars and their rigging silhouetting against the evening sky.

It is quite true, as it has been said, that many of the best instantaneous pictures are accidents or chance shots, but I say to you do your best to secure such accidents, for they make reputations just as quickly as studious efforts. Although chance may throw in the way some object with interesting or curious effect of light and shade and composition, it requires an artistic eye to appreciate that effect and the technical skill to reproduce it. You will find that they are never made by novices.

#### HUMOR.

The humorous in photography seems to be an unworked field, yet it has many possibilities. For instance, Dr. Goddard's "Cats," taken on an ordinary backyard fence; a string of youthful felines hung on its edge, some surprised and some lustily mewing for help, and all too young to risk the jump. It is a delightfully humorous animal study. Mr. Connel's "Watching the Races," showing two sports, with heavy watch-chains and large check suits, attentively watching something from their seat upon the top of a five-rail fence, is also humor in photography.

#### STILL LIFE.

I have often wondered why amateurs do not make more studies of still life. In the *Harpers* for December, 1885, there is an article on Leon Bouvin, the French water-color artist, which gives a few illustrations from his works. These simple and effective arrangements could be studied to great advantage, and, as the work could be done in the house at odd times, it would seem to offer an opportunity for some dainty pictures. A few graceful flowers and a suitable vase, a table, and background, light or dark according to the tone of the object, is all that is required. The picture of the "Night Blooming Cereus" by Mr. Gibbs, illustrates the idea very nicely. As this was taken by the light

FIG. 4.



A Breezy Day. By W. H. Lowden.

of an oil lamp there seems to be no reason why other flowers cannot be photographed in the same manner.

#### TRIMMING.

No matter what is the size of the plate, the print should be cut down until it is a

picture. Sacrifice foreground and sky until you arrive at good composition. A good picture, however small, is much to be preferred to a faulty large one. Some photographers seem to think they spoil a set of prints by cutting down one of them. The truth is, that unless they do cut down those

prints that require it, the others will be spoiled by comparison.

#### THE WORK OF OTHERS.

A photographer can seldom change the arrangement of what is before him. To partially make up for this he must spend time in attaining knowledge which will enable him to select from Nature what is artistically good. To this end he must study what others have done in art, or written upon it, and must also study closely from Nature.

I was recently shown about fifty pictures made by H. P. Robinson, the celebrated English artist-photographer. There were a number of very fine and original pictures, and there were some that attracted criticism. Taking them together, there was a sameness in dress and sometimes no explanation for the presence of the figures except the title, which explained but little. One vainly asked himself what were they doing and why were they there—a question, by the way, which should be addressed to every picture containing figures. The cloud effects in some were inclined to be muddy, and in a few cases lighted from a direction differing from the source of light upon the landscape. But in commenting upon a photographer's work one must make allowance for what is possible and what impossible, and whether the artist could have bettered his work by the material presumably at his command. Much can be learned by studying Mr. Robinson's pictures, or those of any good photographer, but the student errs who studies the works of any one artist, and especially of a photographer, who is bound by certain limits. More can be learned from close attention to the details and to the causes and effects in the pictures of acknowledged painters of figures and landscapes, than from the best work of the most skillful photographer. To the latter there are many things impossible, such as the effects of color, the changing of composition and arrangement of figures, and changing them at any time after the picture is made.

Etchings are closely allied to photography, and a study of them will be found most useful in giving hints as to compo-

sition and effects. In studying from any production of art the observer should always remember and follow out the advice given to all students: "Analyze whatever is pleasing and find where lies the charm; whether it be in the general arrangement, or in the effect of light and shade." In studying figures note particularly the pose of the hands, for in photography they are the most unmanageable part of the human body.

There is a popular picture by Meyer von Bremen, showing a sturdy, barefooted little fellow standing before a well, his outstretched hands guarding it. Before him and to the left, is a little girl holding the empty pitcher she has come to fill. Her bashful air and the mischievous expression of the boy's face, show plainly that toll is necessary before the pitcher can be filled. The expressions and attitudes of this picture could be easily reproduced by the camera. By close study and analysis of such pictures one can get many useful hints, such as the posing of figures, the position of hands and feet, and general composition.

To study posing as seen on the stage is useful. Perhaps you have noticed the many pictures made by the Daly Troupe, or the Carlton Opera Company in any of their charming plays and operas, and that the position, the pose, of each figure has been previously studied. Not that this is apparent, but that it is impossible for people to arrange themselves so artistically and gracefully without study.

In "The Taming of the Shrew" pictures and tableaux are made wherever possible, the picturesque dressing and richness of coloring giving valuable aid for artistic effect. In the last act the grouping around the banquet table is brilliant and effective. Back of it is the group of choristers. To make them subordinate and to give distance, a netting is stretched in front of them and between them and the principal figures around the table. This group in the background is composed in figures in light colored draperies. To strengthen the composition of this group, the figure of a male is introduced on the right. He is dressed in dark garments, is taller than the other figures, and stands leaning on his spear, giving

variety and strength to what otherwise would be a weak composition. Mention is made of this particular scene to show the value and the result of grouping when carefully studied and arranged according to the rules of art.

And so it is with every art production that excites our admiration. In all of them can be traced the study of the designer and the rules of arrangement, pleasing us best when most concealed. They will be found in the purity and repose of marble statues, and in the warmth and glow of bronzes. In the stained glass of old Cathedrals that reveal a story through a burst of light. In the "frozen music" of architecture; in the paintings of masters that lead us now to mirth and now to compassion. In the placid repose of the Venus of Milo, or the fire and courage shown in the statue of Caraculus as he raises his arm in defiance of the Romans and calls upon his people to resist them. And every production of the fine arts that awakens our love for the beautiful helps us to a higher plane of intellectual thought.

## PRACTICAL PHOTOGRAPHY FULLY EXPLAINED.

BY DR. J. H. JANEWAY, U. S. A.

(Continued from page 263.)

### PART II.

*Dry-plates.*—Having now a place in which you can work with safety, you can unpack your chemicals and arrange them, and unlock your plates. But first let us consider the kind of plates best suited for the beginner to commence with. My advice is to procure a slow plate, say about 16 or 18 degrees sensitometer (War. ecke), a Carbutt "B," or any plate of about that grade will give better and more satisfactory results than a more rapid one. As they contain more silver they develop more easily and quicker than the rapid ones, give greater contrasts, a more brilliant image, and much more density. They allow you more latitude on exposure, and also in development. A second or two more time is not of vital importance, and the result, a perfect negative, is a very satisfactory conclusion to your work. Oftentimes even the most expert

photographer is puzzled as to the amount of exposure to give his plate. With a rapid plate one or two seconds overexposure may result in perfect ruin to the negative, but it is otherwise with the slow plate where very full exposure may be given; five, or even ten seconds will not prevent a good negative from being obtained. Don't, if you do not wish to meet with a Waterloo defeat, begin with a rapid plate. Do not commence your career as an amateur by constantly changing the make of your plate. No matter what others advise you or tell you of this or that make of plates, take my advice, and good workers will bear me out: choose a good brand of plates, and there are quite a number to choose from, and stick to that brand until you have completely mastered it, its proper exposure and development, its eccentricities and needs, for no two brands are alike, and require different handling, and you will find that the exception will be accidental, if you do not get nine negatives to be satisfied with out of ten plates. After having mastered the slow plate, it will be time enough, for you will then be quite well educated, to tackle more rapid and so-called instantaneous plates. So here we are taught again the lesson of patience, and to hasten slowly.

*Filling the Plate Holders.*—This, of course, must be done in your dark-room—done slowly and with care. If in too much of a hurry, you will run the risk of placing the sensitive or film side of your plate next to the septum of a double holder or back of a single one; and a failure will be the result in your exposure. Having the holder ready to receive the plate, take the plate out of its box and carefully dust off both sides gently with a camel's-hair brush, to guard against the possibility of any speck or particle of dust being upon the surface of the plate, the presence of which would cause a spot, pin-hole, or defect in the finished negative. It is also a good plan occasionally to dust out the plate holder also. Having dusted the plate, place it in the holder, the film side toward the slide. A single glance of the eye should tell you which is the film side, but it is well to familiarize yourself by the sense of touch, which is the glass or uncoated side of the plate, so that you can, if

necessary, fill your holders in absolute darkness.

Many plate makers pack their plates with some separator between them face to face, the top and bottom plate having the glass side presenting to the box. This is a good plan, and should be adopted by all. Still, if you do not keep an account of the number of plates removed, you will have to depend upon either sight or touch—the touch to be applied to the glass surface only, if possible; for the gelatine coating resents too much familiarity. After having filled your holders be careful to close the box containing the remainder of the plates before you leave the dark-room, or turn on the light. Having now your holders filled, you are ready to start out to make an exposure. But before doing so, take your time and see that you have everything that you will need—that everything is in order—the slides of your holders well home, and if marked for exposed plates that those marks are inside; have the holders wrapped up in an additional focussing cloth, especially if you are going out into bright sunshine. For the light will creep in, in some mysterious way, be your holder ever so tight, if it be exposed for some time to the direct rays of the sun.

*The Taking of the Picture, or Exposure.*

—About the proper time for exposure, probably more has been written and more discussion than upon almost any other subject in the art of photography. Many rules and as many more tables, all more or less complicated, have been set before the operator until one almost becomes dazed at the necessity of ascertaining the intensity ratio of the stop to be used, then multiply, then add, now subtract, now multiply or divide by some number, correct for the time of year and the hour of the day; and when all this is done, a change has taken place and the picture you desired to take has gone—perhaps forever. The fallacy of these tables can well be understood when once you recollect that there is not a single constant condition in the exposure of a gelatine plate except the aperture of the lens.

The character of the light varies hour by hour, and often minute by minute; the character of the subject varies very widely.

There is great difference in the rapidity of the plates, even in the same package, and especially those of different makers. If such be the case, how then can tables be formulated that can lay claims to accuracy? How then are you to learn how to properly expose a plate? You must learn by careful observation and recollection. For there is no royal road to this, neither will the most carefully prepared tables graduate you in this art. You must carefully note the apparent brightness of the image upon the ground-glass with the full aperture of the lens, and then the effect produced by the insertion of the different stops—remembering the ratio value of each stop—looking well at the darker parts of the subject as each stop is inserted. Then note the difference made in the brightness of the image at different hours of the day, and different seasons of the year, the condition of the sky, the light produced by different kinds of clouds, by haze, by mist, by rain or snow. Store all these up in your mind, and assist your memory by keeping a note-book well filled by these observations. It will take much practice, more study, and, above all, intelligent observation before you can expose, and expose correctly too, as if it were by intuition or rather speaking correctly, for it is not really intuition, but education, and education alone.

But let not all this discourage you, for the more faithfully you try to overcome the difficulties thus early in your path, the quicker you will be in reaching the true point of success.

Beginners are often told to expose a plate in sequences of time, and this is certainly a correct way to do. Experts constantly do it when handling a new brand of plates for the first time in order to satisfy themselves as to the rapidity and requirements of the plate. To do this, draw a line with your pencil upon the slide of the holder close to the borders of each end, then divide with the pencil the intermediate space into three or four equal divisions, according to whether you wish to expose the plate in three or four spaces of time. When placing the plate in the holder, mark with a pencil the end which will be exposed first the figures three or four. These figures remaining after de-

velopment will be a guide to you as to the amount of exposure that end of the plate will have received. Now having carefully focussed your camera upon some well-lighted landscape, put the holder in its place and be careful that your lens is capped, draw the slide out to the line of the first space, and, having decided to expose, let us say for three seconds, uncap your lens and mark the time by your watch, or count one, two, three, four, five very quickly three times. I recommend the counting of five, for by that means you can divide the second up into fifths, and your counting will, by a little practice, mark the seconds of your watch. Having counted the five three times, cap your lens and draw the slide to the second mark and again uncap your lens and count as before, and then recap. Again draw the slide, this time entirely from the holder and repeat the operation for the third time. Now return the slide to the holder and take it to the dark-room for development. Your plate has received upon the division which you have previously marked, nine seconds exposure, the next, or middle division, six seconds, and the last three seconds. Upon development and fixing you will see which part has received the nearest approach to the correct amount of exposure. If you think that nine seconds has not been enough time, repeat the operation again and increase the number of seconds.

Either plate will serve as a text-book for you. It is well if your lens is provided with a set of stops to go through with this, as I call it, manual of education with all of them. After development and fixing, the plates should be labelled and put aside for frequent consultation, together with your note-book.

There are certain rules which may as well be mentioned here and which are to be carefully stored up in your memory, and have a prominent place in your note-book. Of course, I refer to countries north of the equator.

In June the light is strongest, and is weakest in December. It is at its maximum of power at 12 o'clock noon, and at its minimum at sunrise and sunset.

From April to September the intensity of light remains about the same from 10 to

2 o'clock, and requires about the same time for exposure.

From September to April the intensity of light remains about the same from 10 to 1 o'clock.

You must increase the time of exposure before or after these hours moderately in summer, much more in winter.

Diffused light is generally much better than bright sunshine.

Soft white clouds increase the intensity of the light—heavy and gray ones always diminish it.

Winds have their effect also upon the intensity of the light—some producing a clear crisp atmosphere, others producing heat or haze, and, consequently, very little true light.

Be careful never to have the sun directly behind you, and very seldom (without shading your lens) immediately before you.

*Developers and Development.*—If the ancient sage could utter, in his age, the mournful refrain, “and of making of books there is no end,” what would be his language now were he still on earth, and photographically inclined, when confronted with the mighty army of developers abroad, and whose ranks are daily augmented by new recruits, each claiming a prominent position in the very front ranks, regardless of the fact that they have not been proven good either by time or experience. The very fact of so many is an argument against the practice of our health-giving, joyable, and pleasure-producing art; and nothing can be so fraught with terror and fear of disappointment to the beginner as the many complex, complicated, confusing, confounding, and confounded mixtures sent forth broadcast, not alone by the photographic journals, but also by the daily press, under the name of developers, and always the best.(?) Is it not time for both the advanced amateur and the platemaker to call a halt in this matter, and seek by simplicity, at least a little intelligence and some chemical knowledge, to correct these grave faults, and thus make plain what is now a jungle of noxious weeds? It has been gravely recommended by some in high authority to use the formulas sent out by the platemaker, with the batch of plates

as being the safest and surest. Surest of what? Of many a bitter disappointment and signal failure, of which the young beginner is sure to reap an abundant harvest. It may be that in the hands of the experienced demonstrator of the particular branch, that good results will be obtained. But does this prove that in other hands it will be the same? Not at all. And should it be so, the result will be simply a mechanical development, and not one of intelligence, as should be the case always. What developer, then, should the beginner choose? My answer is, the simplest one that he can find; one that is founded upon sound chemical laws, and not one that by its many components violate all those laws. Let him seek the advice of either a professional or amateur, whose negatives show by their appearance an intelligent worker, but do not purchase a ready made developer, no matter under what name, whose component parts are not given or the quantities of those are kept secret. Study, and study hard, some one of the books on the chemistry of photography. They are not voluminous, and it will repay you both in pocket and temper in the very near future. It will teach you that you cannot dissolve three or six times the amount of a salt, in water, above the quantity that this water will take up. That you cannot add a saturated solution of one salt to a corresponding solution of some other salt, without loss of a considerable amount of either one or the other, and very frequently also of both. It will teach the use and object of each article in the developer, when to increase one or decrease another; when all should be decreased or weakened by the addition of water. In fact, it will teach you to be an intelligent, observing, and successful manipulator, not one of those who blindly follows some prescribed formula, or one who works by the rule of thumb, a happy go lucky fellow, who does not seem to care whether he succeeds or fails, and excuses his many failures by saying that he was experimenting.

There are two prominent classes of developers. The ferrous oxalate and the alkaline pyrogallic, from which the beginner can choose.

The ferrous oxalate is made by adding to

a certain quantity of a saturated solution of oxalate of potassium a certain amount of a saturated solution of sulphate of iron and a certain amount of a ten per cent. solution of bromide of potassium. *A few formulas will be given later on.* Some prefer this method in development to the exclusion of all others, and others much prefer the alkaline pyro developer. For my own part I prefer the pyro, because I think that it is more energetic, gives one more latitude of development, and that the development can be pushed further with it than with the oxalate. Pyrogallic acid of itself will not bring out the latent image upon the plate, but requires the addition of certain alkaline salts combined with it, in water, to produce a certain *vis a tergo*, a power from behind to start its activity into being. These salts are sometimes called the accelerations, a term not altogether correct, which might lead to a misunderstanding of their action, and often does to the unthinking workman.

The three alkalies generally used are ammonia (this principally in Great Britain), soda, and potassium; the two latter in the form of carbonates, are very generally used in this country.

I think that the great objection to the ammonia, irrespective of its pungent odor, is that being so exceedingly volatile it soon loses its strength, and cannot be depended upon after keeping it on hand, and using for a day or two; at its best, it is uncertain, working no two days alike. Soda being a fixed salt is, therefore, to be relied upon, but it has an unfortunate tendency at times to stain the gelatine film; some plates are more affected by this than others. Potassium has not this tendency, and possesses all the good qualities of both the others. Some, therefore, prefer the potassium, some the soda, but a great many combine both these salts in their developer. When combining, it is well to remember that the carbonate of potassium has nearly double the strength of the carbonate of soda. Sulphite of soda is also added to the developer. It has been said to have various effects, but its principal use and effect in the developer, is the preservation of the pyro from oxidation by the liberation of some of the sulphurous acid. It should be slightly acid, and added to the

developer in the proportion of four of sulphite to one of pyro. In using these salts always employ them in their crystalline form, for then you have a certain fixed strength. The law of crystallization takes care of that. Dried and powdered chemicals are not to be depended upon for purity or the amount of water lost. Sulphite of soda loses 50 per cent., and carbonate of soda about 55 per cent., carbonate of potassium nearly 45 per cent. The same objection holds good in regard to the granulated salts. I strongly advise that all solutions used for making developers should be made for convenience in 10 per cent. solution, *i. e.*, one part of the salt to nine parts of water, is near enough for all practical purposes. You are then better able to control your manipulations, and can tell to a nicety the strength used or required. Keep all your solutions in ground-glass or rubber-stopped bottles, and the bottles carefully and distinctly labeled. The water used for all developing solutions should be distilled water if possible, or water obtained from melted ice and filtered. There is one point that I have omitted. In making solutions containing carbonate of potassium and sulphite of soda, it is well to mix them, before adding the water, as the potassium gives out heat and the sulphite absorbs it; the solution of these salts will be facilitated.

*Development.*—Having exposed a plate, we repair to the dark-room, remove the plate from the holder, and you behold it as it was when you put it in; not the trace of an image, and it is now necessary to develop it or bring out the latent image. The development of a plate is ever the source of wonderment and pleasure to me. I never develop a plate without seeing something new or striking—something that I never saw before—and there is also always added a certain uncertainty about it, which renders the successful result all the more enjoyable when obtained. It will be well that you should understand the rationale of development before you proceed to develop a plate. The plate having been exposed in the camera holds in its sensitive film what is called the latent image, produced by the action of light on the minute particles of silver in the film; now should this film be

exposed to light in this condition, the whole film would be obscured or fogged, and all chance of the latent image ever being visible is gone, no matter what means you may adopt to bring it forth. But the plate being protected in its holder, is carried to the dark-room, placed in a tray, and the developing solution applied—a real image begins to form—a building up process at once commences. The minutely divided particles of reduced silver fly to take their place in the wondrous structure that is being erected, and continue to do so till the work is done. The more correctly the time of exposure has been made, the more beautifully is the effect produced and the more of the particles appropriated. But not all of these silver atoms are utilized or find a lodging place; some are drifted off in the washing, and others are compelled to leave in the fixing bath.

You will certainly need for the operation of developing, four trays. Three of them should be of hard glossy rubber, or agate ware, and the fourth, deeper than the others, should be of galvanized iron or wood, well coated with asphaltum varnish. Their uses are as follows: one for your developing solution, one for clean water, one for alum bath, and the fourth for the hypo solution, or fixing bath. Caution before developing: always have your trays and graduate measures scrupulously clean. Determine what you will want, and have it always where your hand can reach it. Don't have any crystals of hyposulphite of soda near your developing table, and don't be stingy with your developer. It should cover your plate at least one-eighth of an inch. In summer, if you use the pyro developer, reduce the quantity of your alkalies; increase them in winter. Now, everything being ready, take the plate out of the holder carefully, holding it carefully by one corner or edge, and gently blow over the film side—this will be sufficient to disperse any dust that may be on the surface. I think that by using a brush, as often recommended, the developer does not attack so readily the film as it does after blowing on it; place the plate in the tray film side up. Should you make the mistake of reversing the plate, you can console yourself with the certainty that you are

not the first one to do it. Take the tray in your left hand and slightly depress the hand, and having the graduate containing the developer in the right, by a slight twist of the wrist sweep the developer over the whole plate from the top to the bottom. A little practice will soon enable you to do this without splashing, and to cover the plate quickly in one long wave. If the plate is not uniformly covered it is apt to be streaked, and show patches later on. Place the tray on the table, and by gently rocking it you will cause the developer to attack the film evenly. Some plates are apt to have air bubbles form on them; they can be removed by a gentle sweep of a camel's-hair brush kept for that purpose, or by the back of the finger. If the plate has been correctly exposed, traces of the image will appear on the sensitive film in a short time. My instructor taught me to count nineteen deliberately after pouring on the developer; finding it to act so well, force of habit leads me to continue it. If the appearance of the image is much delayed after the counting is finished you will certainly have an under-exposure plate. I am speaking of slow plates, remember. There is one exception to this, however, for sometimes a plate fearfully overexposed may be made slow in coming up. If the image appears before the counting is finished you are always certain of an overexposed plate. Should the image be delayed, or a want of detail exist, add a little more of your alkaline solution to the developer. Pour it into the graduate and force the developer into it, shake it to mix well, and then return it to the plate. In a short time the image will appear; first the sky and other bright objects, then the half tones, trees, figures, etc., and, finally, the details in the shadows; the deepest of which, however, remain perfectly white. Wait patiently for all these, and you will notice that from a white the plate has changed to a gray, and the image is beginning to fade, or recur into the film as it were. Upon examining it by transmitted light you can tell whether all the details are out, and that it is dense; looking at the back you will see the picture presented there faintly, and the plate now called the negative is ready for the fixing bath. Some-

times a part of the plate seems to hang back, as it were. Very often you can quicken it rapidly by blowing upon that spot, either through a tube or directly by the mouth. Should the image flush out very quickly after pouring on the developer, take it at once out of the developer, and place it in the tray of clean water; the plate being just covered. Oftentimes this will so check the development that in a little while the plate can be returned to the developer, and the development go on regularly to the end. But should the image flush out very soon after the application of the developer, in order to save your negative it will be necessary to add some bromide solution to the developer as a restrainer; in the same way as recommended for the addition of alkalies. Should too much of the bromide be added, the development is stopped, and it will be necessary to add carefully more of the alkaline solution to start it again. Sometimes you may not have time to remove the plate from the developer and add the bromide; in that case add as much water to the developer as is the amount of developer, ounce for ounce. Some very good and successful workers, whom I know, always depend upon water as a restrainer, and use nothing else.

The plate having been developed wash it under a gentle stream of water for one or two minutes to eliminate the developer, and then place it in a tray, for a short time, holding a saturated solution of alum; this will harden the film and prevent frilling. Slightly wash and place it in the fixing bath, which is made as follows: hyposulphite of soda, one ounce; water, four ounces. As this salt, whilst dissolving, is a refrigerant, it is well to have the bath made a day or two before using. And here remember, whether you use a tray or any other article for this bath, never use it for any other purpose than to hold a hyposulphite of soda solution; if you do you will rue it. Mark it hypo in large letters. Keep the plate in the hypo until all the milky substance has disappeared from its back; this you can note by raising the plate, and examine the back. Should any white patches be seen, replace the plate, and wait until all are gone; and then wait a little longer, say two or three minutes, for a small patch may have escaped

your notice. You can now examine the negative by white light, for it will not hurt it. After examining it wash thoroughly, preferably by letting a gentle stream flow over it either lying flat in a tray, or, what is better, on edge. All the hypo must be eliminated from the film and plate, and sometimes it takes considerable time to do this. After carefully cleansing the plate, again put it in a saturated solution of alum, and let it remain there five minutes. This will harden the film still more, and the alum, acting as a scavenger, will clear away the last vestige of the hypo. Now wash it again for a minute or two, and set it up to dry; using a negative rack, if possible. It may take several hours to completely dry it. Do not apply heat, for if you do you will melt the gelatine which holds the film to the glass, and cause havoc. Your plate being put in a negative rack, and placed in a gentle draft, will dry much quicker than in a close room.

*Intensification.*—Sometimes from over-exposure your negative is thin or flat, and does not print well, though the details are all there; this fault is remedied by what is called intensification or strengthening. Underexposed plates may be, and are generally thin, but the details are very imperfect. If slightly underexposed they may be benefited by the same procedure to a small amount. Should the negative be much underexposed throw it in the waste box, for it will not pay you either for the time or trouble. For the young amateur I know of no better formula for intensification than that given by Prof. H. J. Newton, some years ago, for it can be used on the plate either wet or dry with equally good results. Dissolve 60 grains of the bichloride of mercury (corrosive sublimate) in 20 ounces of distilled or melted ice water. In another vessel dissolve 190 grains of iodide of potassium in 4 ounces of water and pour this gradually into the first solution. At first a red precipitate is formed, but as you continue to add the iodide solution it will be dissolved and a clear, slightly greenish liquid will be the result. This will last for some time. To intensify, pour some of the solution over the negative and rock it gently. The intensification will be complete in two

or three minutes; then wash well and immerse it in a very weak solution of hypo, 5 per cent. solution, for a few seconds; wash carefully and put the plate by to dry. This can be done outside of the dark-room. Should the plate not be dense enough after drying you can repeat the operation.

*Reducing the Density.*—Sometimes your negatives are too dense to be good printers. If the density is general I know of no better way to reduce it than by a slight modification of the plan formulated by Farmer, of England. Dissolve 3 grains of the red prussiate of potash in 1 ounce of a 5 per cent. solution of hypo. As this solution decomposes very rapidly it should be prepared just before using. Having had your negative in water till the film feels soft to the touch pour the solution over your plate and let it remain for a few seconds, then examine it, and if not reduced sufficiently replace it in the tray for a few seconds longer. If upon examination sufficient reduction has taken place, plunge the plate into a tray of clean water and rock it smartly and finally treat it to a good stream of water before putting it up to dry. As the action of the reducer is rapid but even, frequent examinations are necessary. This reducer can be applied also to parts requiring reduction by the aid of a camel's hair pencil but care should be used that it does not run, and to wash well afterward. When only small portions of the plate require reduction this can be successfully done by dipping a soft rag in alcohol and rubbing the place strongly with the rag wrapped over your index finger.

Should your plate, after fixing, show stains or be discolored by the developer, place it for a few minutes in a solution made as follows:

Saturated Solution of Alum	20 oz.
Sulphuric Acid	1 fl. drm.

and then wash and put up to dry.

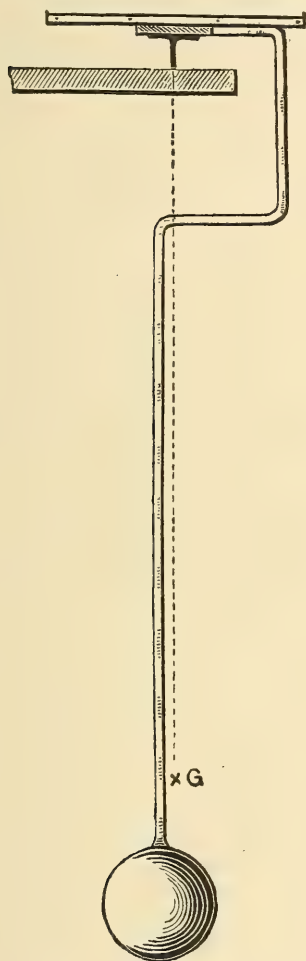
(To be continued.)

[Translated for *The Philadelphia Photographer*.]

## NEW OSCILLATOR FOR BATHS.

THE oscillation of the divers photographic baths, whatever the process used, gelatine, bromide of silver, carbon, etc., being of

great importance in obtaining uniform results, we have been led to make a simple oscillating appliance, without clock-work, possessing the great advantage, owing to the arrangement of its triangular pendulum, to allow of its being placed on, and at will removed from, any table in the laboratory.



The appliance in question consists essentially of the following parts:

An oaken table, furnished with brass corner pieces to retain the dish in its place; an oaken support, in which enters the extremity of the pendulum; an oscillating blade whose plane should embrace the centre of gravity (G); a triangular pendulum, carrying an iron ball.

Advantages of the oscillating dish: 1. The operator has all his movements free during the development, and may even develop simultaneously two negatives; not being obliged to pay any attention to the agitation of the dish, he can better watch the appearance of the image. 2. The operator, not being obliged to hold the dish in his hands, can easily use, according to circumstances, the reagents, accelerating or retarding, and can also regulate more easily the proportions of these reagents. 3. On account of the regularity of the oscillating motion, it is possible whilst employing less of the bath than when motion is given by hand, to avoid the marbling and streaks which are always produced when development is not obtained uniformly over all the sensitive film. 4. Finally, the fixing and toning baths being properly agitated, the annoying reactions mentioned above are no longer to be feared, and the permanence of the prints will be assured.—*Bulletin Belge*.

### A NEW FLASH LIGHT.

BY W. P. DRAYTON.  
Cleveland, Ohio.

At a meeting of the Cleveland Club, December 6, 1887, Professor Bolton gave a demonstration of his new flash light. There were so many inconveniences—breaking of negatives, etc.—that the results were less satisfactory in an artistic than a practical point of view. The professor has, no doubt, made a valuable discovery, and he also has generously given it to the photographic fraternity. For a given sum expended this light is more actinic, and gives a softer picture, owing to the greater volume of flame. It also has the advantage of producing no smoke or debris. The materials for its manufacture are easily procured, it is not difficult to manufacture, and the results are uniform. In only one direction do I perceive that magnesium is superior—portability. For those who are up in chemical manipulations, the following description may be useless; for the photographer generally it may be of assistance.

Metallic copper, nitric acid, and carbon disulphide, an eight-ounce wide-mouth bot-

tle, a two-quart jar, with very wide neck ground in the edge—a battery jar answers perfectly,—an 8 x 10 or larger tray, half filled with water, a bent glass tube, a thistle funnel, and a piece of rubber tubing completes the list of requisite articles. Through the cork of the bottle passes the thistle funnel to one-fourth of an inch of the bottom, also pass the small end of the bent tube through the cork only; now place two or more ounces of scrap copper in the bottle, insert the cork, place the free end of the rubber tubing under the jar, which has been filled with water and inverted in the tray, a piece of plate-glass having been placed over the jar after filling. The other end of the tubing having previously been attached to the bent tube; now pour a mixture of nitric acid one ounce, water one drachm, through the thistle funnel; gas begins to evolve, passes over the bent tube, and displaces the water in the jar; when full, place the jet in an erect position, carefully keeping the glass plate over the mouth of the jar. Having filled a thirty minim pipette with carbon disulphide, slide the glass plate from the jar sufficiently and inject its contents into the jar. The jar may then be shaken for a few minutes; it is, however, ready for ignition. Light a match, remove the cover, and ignite the gas quickly.

The following is Professor Rusk's report on the gas flash-light for portraiture:

"There is no question as to the actinic power of the new nitric-oxide light, but some experimenting will be necessary to place it in practical form for first-class portraiture. My best results were secured in the following manner: The light was placed about twelve feet from the subject, at an angle of 45° to the side and also elevation. Tissue screen one foot from light, and a mirror for side reflector, which had been previously adjusted by using a lamp as a source of illumination. The jar of gas taking the place of the lamp, ignite with a match, taking care not to hold the hand over the jar; a two-quart jar gives fully exposed plates by this method, a 4-4 portrait lens being used. The photo accompanying this was made in this manner, no retouching or doctoring done to the negative. I would advise that development does not immedi-

ately follow exposure, as the persistence of vision regarding the light will cause errors."

### SUCCESS OR FAILURE INFLUENCED BY LITTLE THINGS.

BY THOMAS PRAY, JR.

THERE are very many things entering the composition of a photographic negative; some of them we have a pretty good knowledge of, others we know little enough of. Many are so very uncertain of so many of these items, that many and many a bright man is continually on the watch for, and tracing out the reason for observed facts, which are in any way likely to add to our stock of actual knowledge, that we may be more certain of the various factors. This is called experimenting, and is an expensive luxury, as a usual matter, for the person who conducts this sort of work. A record of this work, or so much of it as comes to the general reader, is found in the PHILADELPHIA PHOTOGRAPHER and its contemporaries all over the world; and one who reads, and collates from the mass of information given, will find much that he or she can adopt with profit, pleasure, and added certainty of success in work, and a lessening of the failures.

Science has aided us to solve only the general outlines of the great problem of photography; it has given us only the skeleton, and we, the earnest workers, must fill in, fill up, from our own working and observation as best we can, according to our capacity and opportunity. "Little" things are not always of minor importance in our work; many of the items are of permanent influence as well as permanent with regard to the negative and print, and it seems to be such little things are what readers of the PHILADELPHIA PHOTOGRAPHER are now querying about.

#### LENS AND STOP.

My own practice is to use a lens one size larger than the size of the plate upon which the lens is rated to work. This means a shorter exposure with relatively the same stop, and a finer negative if the exposure and development are carried on correctly; and if snap-shutter pictures are aimed at, then a large lens for the plate used becomes

an imperative necessity. In the use of stops, just the same diverse opinions are held as about developers, or any other of the branches of the art. From the optician's line of reasoning, we find that a large stop gives detail in the shadows, and if we are to have detail, where the light is most diffuse—weakest—then, with the same number of seconds of exposure we shall accomplish from the common-sense standpoint two very essential things that go far toward the making of a perfect negative: shorter exposures and more light acting on the silver salts. Of course, some one will ask, Cannot this thing be carried too far? Certainly; but a simple rule prevents any possibility of trouble or uncertainty, viz.: in all out of door work, use the largest stop you can which gives definition clear over the edge of the plate. The picture, when finished, will be bolder, more prominent, or, as an English writer says, "more robust." This is the fact, for the finished picture stands out clearly, more in relief; while, if carried to the usual practice of the smallest stop to obtain microscopic definition, flatness prevails, and the same thing is frequently seen where fast plates are used, stopped down to smallest stop, in order to give a *time* exposure. In landscape work my own preference is with slow plates and good light, to give short exposure with as large a stop as can be used, and so get detail in darkest or most shaded portions of the picture, an increase in the aerial perspective, thus giving all the contrasts possible, but so nicely graded that the eye in following out the details, finds rest in every part of the picture. If one prefers pictures where monotone prevails, use a small stop, and lengthen the exposure. Monotonous expresses it.

In lenses, there are distinctive features to each, and a character given to the negative peculiar to the lens in use. This needs studying quite as much as the peculiarities of any one plate or developer. For landscape work no lens, in my own opinion, is superior to the high-grade single combination; not the two for a dollar, but the fine lens. This the amateur can hardly afford, as he or she wishes a good lens, and makes it do general "all around" work. In using a Ross or Dallmeyer short focus lens, it is quite prac-

ticable to remove the front combination, and so double the focus and produce beautiful negatives, especially where distance is in our favor. Where it can be afforded, it is an excellent plan to have two or more lenses for each outfit, and have flanges made to fit the largest ring, so that each of the lenses used for any one outfit can all be put into the same ring quickly and perfectly, and without carrying a lot of front boards, to get lost or cracked exactly when the mishap causes the most trouble.

In "snap" work the preference is given to short focus lenses for perfection, by some of the best workers; and others who go in for "time" in minute fractions, prefer a moderately long focus lens for quickest work.

In speaking of short exposures, it is not intended to go into "snap;" quite the contrary, give a liberal amount of exposure according to the plate and lens used; for by following up with a developer of fair strength, you get out of the plate all that the light has impressed upon it, making the high lights dense enough, while getting plenty of detail in the shadows, and as a result getting a negative that is both full of detail and harmony, with such modulations that all the parts appear in proper contrast, making up a real reproduction of a natural object that is recognizable, and a relief to look upon. If the exposure has been too long, the negative may be weak in some respects, and if too short, it will be weak all over; then the "happy medium" lies at a point between the extremes, hence easily attainable. A negative with good degree of density, will in all cases make the cleaner and more perfect silver or bromide print; yet a negative properly exposed and correctly developed, may have quite sufficient density, and yet be a quick printer, and full of detail, restful to the eye, pleasant to all who appreciate pictures.

It is quite as easy to make a good negative as a poor or indifferent one. The causes of failure, or some of them, are small stops, insufficient exposure, prolonged development, with too strong a developer; in such cases the true way is to strengthen your developer with water, and let the plates lie thirty to forty-five minutes, but the con-

trary is the rule; too many times, more alkali, then more pyro, and sometimes several *repeats*, until the developer is strong enough to take the glaze off an earthen tray almost.

Another and most frequent cause of failure is an unbalanced developing solution. For this plate-makers are quite as much to blame as any one. They say: Mix up this mess (here follows formula), then add 1 drachm of  $x$ , and  $\frac{2}{3}$  drachm of  $y$ ; put it on the plates, and if you don't get such a result as you want, use more  $x$  to get density, and more  $y$  to get detail. Indefinite as can be—"more;" what a direction—"the blind leading the blind, and all four get in the ditch." But this subject, which calls for facts and figures, will have full justice done it from the published formulæ of the P. M.'s soon. To return, an unbalanced developing solution has either too much alkali, soda potassium, or too much pyro, to work in harmony. The plate, having had some sort of an exposure, is to be developed; now some plates will stand all the pyro and soda you can put on them, others require more pyro to the ounce of solution, and one-half, one-quarter, or even less of the soda, or potash than another, to produce the same density of negative, while another plate comes up slow in density and detail, and if you go ahead with an unbalanced solution so as to rush development, or get more density, the chemical action exactly negatives your effort, and a poor printing negative is the result.

There are so many little kinks of this sort, that a very general rule for the amateur is this: Take one certain strength of developer, do not change volume, strength, or proportions in any way; then take the plate and only one speed, and say one stop, and expose for different lengths of time; develop all in one developer as above, and find out where you get nearest to a correct negative.

If you get detail more than density decrease the soda by a small amount, using same amount of pyro, and try again. When you can get a succession of fair or good negatives with same stop, plate, and strength of developer, you are then beginning to be capable of varying stops and exposure to suit subjects, and it then really commences

to be a study in other respects, and the several little things covered by this one phrase make or unmake an amateur photographer, or they make him or her a success or a failure; it requires many a day of close application, and of the very closest observation as well, to get to be capable of developing well. Plates of any maker are an ever varying quantity, some very much more than others, and we can tell not one thing as to their variations until we see the behavior of the plate in the tray.

Then it is often necessary to change quickly and correctly in some way the action of the solution upon the salt of silver in the plate—for seconds are the measure of time in which we can work; and we must draw from our experience and observation if we succeed. Bromide of soda should be used in all cases except where ammonia is a part of the developer, and bromide of brains should also be added in inverse ratio. Patience mixed with brains will accomplish wonders; and if the determination to master the whole trade is not lacking, get good books and read up—"cram." There are Wilson's *Photographics*, *Quarter Century*, and Burton's *Practical Guide* to the various printing processes, and many others. These are named, because they answer so many of the questions asked so frequently.

## PHOTOGRAPHIC REPRODUCTION.

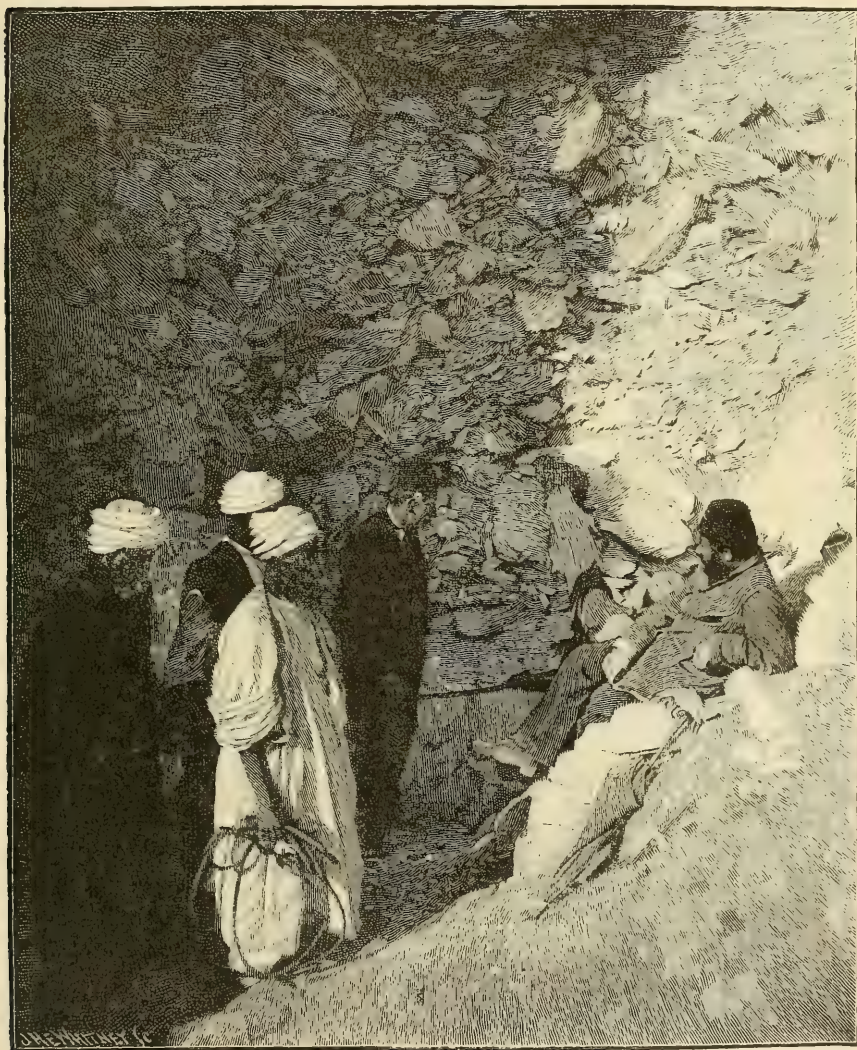


In this busy world few of us, when enjoying a picture, or a book, or a good camera, or a well-cooked dinner, take time

to think very much concerning the production thereof, and oftener care less.

We believe the time has come, however, when photographers should be enlightened a little more, and take time to think, about

tions first, namely, that all enterprising photographers must, sooner or later, connect with their other business, a department for making reproductions from their negatives by mechanical means. This is an age of



the wonderful work our art is doing in the matter of reproduction. Other articles herein will give a number of suggestions, but we desire to explain some of the differences in the methods and their results, and to make a few suggestions. Perhaps it would be better to make one of the sugges-

pictures. Everybody wants pictures. Describe a person, place, or thing as you will, the people cry for the addition of illustrations. Our best magazines, weeklies, and newspapers understand this, and our scientific journals are not behind. The PHILADELPHIA PHOTOGRAPHER is ahead of any

magazine of its class in this direction. But the thing is not going to stop here. Bright people engaged in other lines of business are adopting the pictorial method of pushing their interests. For example, we received a letter this very day from the inventor of a metallic railway-car asking for photographs of railway smashups to help him illustrate the advantages of his invention. There are hundreds of business men seeking illustrations in the same way. *The business*

to begin in the dark and trust to making business. He has made a great success in every way in results and in creating a demand for them. But you are saved all the groping and stumbling he had. We propose to give photo-engraving and other reproductive processes a special department in our magazine hereafter, and to keep the whole subject alive. We invite hints and queries from all who are interested or who are about to become so. As time goes on we shall hope



*belongs to our fraternity.* If we neglect it, the lithographer and the specialist will get it. There is no reason now why he should. Mr. Wilkinson's book has laid bare the secrets of the reproductive processes and the way is open for the enterprising photographer to enter and secure the new and growing business. Mr. Kurtz, whose beautiful work embellishes our current number, had

be very helpful. Meanwhile, Mr. Wilkinson's splendid work gives all the known processes, from the very simple one of making prints from a transfer, by the Universal Copying Machine, up to the most delicate zinc line, half-tone, or stipple, collotype, copper intaglio, and heliotype methods.

To meet an oft-repeated query, we present two examples of engraving for letter-press

printing to show just how photography comes in. The first one is from "Finding Pharaoh," which was used in one of our own papers in the *Century Magazine* for May, 1887. It is of a group at the mouth of the tomb where the great mummy-find of 1881, occurred at Deir El Baharee, in Egypt, and was engraved for the *Century Co.* from one of our own photographs. An enlargement made from the original, was first retouched in ink, and from that a negative was again made the size of this engraving and photographed upon the wood block. This in turn was engraved by the engraver—the most expensive method possible for reproducing a photograph for letter-press printing.

The second example is a Mosstype. The original photograph was from a 20 x 24 plate, by Mr. G. Cramer—his "Tambourine Girl"—a small picture of which appeared in our issue of March 3d. To produce the Mosstype, a copy of the size of the engraving was made and then the zinc-etcher did the rest of the work without any help from the engraver. In other words, it is a half-tone zinc etching, made by a method similar to that used by Mr. Kurtz for "Our Picture." How to do it is detailed by Mr. Wilkinson. The initial cut above was made from a painting, by the half-tone method, and is a study from "Christ on Calvary."

## NOTES ON COLLOTYPE.

BY W. T. WILKINSON,

Author of Photo-engraving, Photo-etching, etc.

THE first item toward a successful colotype print is a good negative, containing all gradations from extreme shadows to extreme whites in their due proportions.

The next is the use of a suitable gelatine. None but the best will do, as example, Nelson's No. 1 and No. 2 Photographic, sold in half pound packets, and in fine shreds, not in sheets; Creutz's Licktdruck gelatine, Heinrich's and Simeon's are all good examples of colotype gelatine.

The gelatine mixed as directed (on page 165, new American edition), should, when dried at a temperature of 110°, have a slightly matt surface, with an incipient re-

ticulation; if, however, it dries hard and glossy, the gelatine is too hard and requires softening with a little strong parchment size made by boiling washed parchment cuttings in water for six hours, then straining. If the gelatine is much too hard, the film will split off the glass, and bring away a portion of the surface with it.

The best plan is always to buy a good supply of gelatine, then to test it, and when once the proper proportions have been determined, the rest of the batch is easily managed; but with small quantities each batch will require separate experiments, as no maker turns out two samples of gelatine alike.

If the gelatine film when on the press will not stand working long, then the gelatine is too soft and requires hardening with some harder gelatine.

Instead of using glass plates, brass are much better, although more costly at first. They are sure to be a saving in the long run. Brass plates must be quite level, and must be grained by means of emery or hydrochloric acid.

The oven in which the plates are dried must be kept at an even temperature all the time of drying the coated plate, and should be placed on a solid floor, as if the plate be jarred during drying the film will dry streaky.

The press used for printing from the colotype plate may be of the ordinary letter-press type with vertical pressure. A lithopress (fitted with tympan of thin zinc), will do, or, better still, a press with roller or cylinder pressure.

The leather roller used for inking up the colotype block must be in good, new condition, a glazed roller being useless. The second roller of glue and treacle, or their analogies, must be ripe and in prime condition for type work—*i. e.*, neither green nor stale.

The ink used must be the best lithoprinting, diluted with olive or cotton-seed oil, or lard, but the dilution must be very little, as the stiffer the ink is used the better the colotype print will be. In this matter of consistency of ink, the opinion of a letter-press man will be better than that of a lithoprinter.

If the collotype block gives hard, chalky prints, the second roller, charged with a thinner ink, will modify the chalkiness. If the print is flat the second roller used clean will clear the ink from the lights.

## ON DEVELOPMENT.

BY A. R. DRESSER.

I AM much amused at the amount written in the photo papers and year books on developers. It is such fun to read every one telling that you must use so many drops of A, or so many drops of B and C, and then half of the said developers are about a chemist's shop, and, as a rule, must give amateurs a lot of trouble. And what does it matter? What a man wants to learn is how to develop his plate properly, and not by rule of three. I say give pyro (quantity wanted), amm. or soda (do.), and a little brain, and that is what is required. I find I can use any of the developers, but the simplest is the best one to use. I find a good plan, and one that works with me perfectly, is a dodge of my own (tried, I suppose, by many before me, but not that I have heard of), and that is to take, say in a measure, water, two ounces, pyro, six grs; and in another measure, water, two ounces (and amm. or soda, quantity wanted). I use washing soda, three drachms sal soda. I then first put in the pyro solution, leave for a few minutes, then pour off, and use soda solution, and so on, turn about, just as I want or require density or detail; by so doing you can save any negative, even if much over-exposed. But what is required is to learn to use your developer as a painter does his brush, to get results required, and not to use it as one would a dose of medicine, just as the doctor orders, and then trust to luck. I feel sure the plan to get the best results, is to use the pyro and soda separately and, besides, to keep two mixtures at hand, viz., one of pyro and soda very strong, and one of bromide, with a paint brush in each, and then when the image appears (and I say always take a long time to develop, and do not flash up), use the paint-brush, and paint parts as required: those that appear too quick with bromide, those that do not come quick enough with strong solution, and then

you can get a negative that does not require after dodging. This looks like telling your "granny how to suck eggs," but still some of it may be new.

I see a lot about hydrokinone in the American papers now. I use it always for slides and over-exposed negatives, and never have found it to fail, but, as far as I can say, it is a perfect developer for slides and fully exposed negatives, but not worth a cent for under-exposed ones, as if you make it too strong with the soda you are then apt to get a red or green fog.

## PERTAINING TO THE



### TO THE PHOTOGRAPHIC FRATERNITY.

The time for the meeting of our Association is drawing near. We hope and expect to have a large attendance, and one of the best exhibitions of our Association.

The arrangements made by the committee, Messrs. Carlisle and Potter, are nearly perfect. We shall have a number of short, practical papers read, and interesting discussions thereon. Let us make it a school as well as an exhibit of photography.

The rules adopted by the Executive Committee in relation to medals and judges to award the same, it is hoped will meet the approbation of the Association. Under them they believe that merit will win.

The special prize (the Blair cup) to be awarded for the best photograph illustrating Hiawatha, should, and doubtless will, bring out a great amount of the talent in our profession, and the result will be worth the journey to see.

The proposition for a Mutual Benefit department in our Association, will be brought before the Convention by the report of a

committee appointed for that purpose. As their report has been published in the journals, so that all have read it, they hope the members will come prepared to adopt, amend, or reject it intelligently. Some feature of the kind would, doubtless, be a benefit to the Association, as well as to the members individually.

Our meeting will be held in one of the pleasantest cities of the continent. She is young, it is true—~~younger~~ younger than our young art—but she is as hospitable and large-hearted as the river and prairies. She will greet you with the music of her waterfalls, the soprano of Minnehaha, and the bass of St. Anthony.

"With his moccasins of magic,  
At each stride a mile he measured;  
Yet the way seemed long before him,  
And his heart outran his footsteps;  
And he journeyed without resting,  
Till he heard the cataract's laughter,  
Heard the Falls of Minnehaha  
Calling to him through the silence.  
'Pleasant is the sound!' he murmured,  
'Pleasant is the voice that calls me!'"

E. DECKER,  
President P. A. of A.



The 1888 Prize Medal.

PROVIDENCE, R. I., April 16, 1888.

DEAR SIR.—Will you kindly say to your readers, as a matter of interest to them, that I leave Providence for Minneapolis about July 1st, and all who desire to do so should forward dues previous to that date. It will be too late to send dues to Providence, say, after June 27th. Yours truly,

G. M. CARLISLE,  
Treasurer P. A. of A.

422 BROAD ST., PROVIDENCE, R. I.

## WHAT PHOTO-ENGRAVING IS LEADING TO.

THE casual reader must not understand that photo-engraving is limited to the reproduction of pictures and drawings for the illustration of periodicals and newspapers. This it can do, on plates up to 28 x 40 or even larger. But it is insinuating itself a great deal farther than that. The public press is alive to it, as the article which follows indicates:

Some time ago the *Evening Post* gave an account of a new process by which books were being reproduced in this country directly from photographic plates, and it was said that the field for such business would probably grow in proportion to the ease and certainty with which this kind of work could be done. Under this process the most important work issued so far has been seventeen volumes of the *Encyclopædia Britannica*, the production being sold at half the price asked for an American reprint already in the market, and at one-third of the price of the imported book. In order to make this reproduction, the sheets of the English volume are carefully photographed, and the glass negative placed over a thick sheet of specially prepared gelatine and exposed to the sun. Wherever the dark film upon the glass negative prevents the light from reaching the surface of the gelatine, this substance remains insoluble in water. Wherever the light penetrates, the gelatine undergoes a chemical change which makes it soluble. After an exposure to the sun or electric light for some minutes, the gelatine sheet is washed with water and the result is a plate in relief, every black line upon the glass negative being in high relief, and everything else washing away under the sponge.

Until the last few years, it had been very difficult to get this relief sufficient to print from, but by improvements in the process effected by a number of different inventors, this result has been obtained. The gelatine sheet having been hardened, an electrotpe is made from it which is put into the printing press. Owing to chance, the gelatine sheet itself was used one day for printing from directly, and it was found that a larger

number of good copies could be made from the gelatine direct than from the hardest electrotype. The only drawback to the use of the gelatine plate itself in the printing press is its liability to crack, for no reason that has been discovered. Both in summer and winter such plates have suddenly split into pieces at a touch, while similar plates will resist the hardest wear and tear of a power press, and will give more than 100,000 good impressions. If some way is found of making the gelatine plate durable, it would be used entirely in place of an electrotype, as it costs almost nothing, and can be made quicker than an electrotype.

The most recent development in this direction, and one which has scarcely been foreseen until very recently, is the proposed use of the gelatine process of printing for newspaper work. A Western inventor has been engaged for some time in experimental work, which aims at nothing less than the entire elimination of the compositor for book work and even newspaper work. The process is virtually that already followed by the firms which reproduce English works by photography, but instead of photographing a printed page, it is now proposed to photograph from type-written pages, and reducing the plate at the same time to the size of ordinary print, to place the resulting gelatine plate upon a printing press and use it instead of the electrotype made from the metal types. For instance, a good type-writer operator can write neatly and with fair accuracy upon the type-writer from dictation about three times as fast as an expert with the pen. In some trials made last summer, in England, between pen experts and the type-writer, the advantage was overwhelmingly in favor of the latter. Moreover, the latest type-writer gives a wonderfully clear and neat impression, and the use of capitals and small letters makes the type-written page almost as neat as a printed page of a cheap book or newspaper.

In the proposed system of work the manuscript for a newspaper will be handed in to the editor as at present, either written out in long hand or upon the type-writer. After correction it will be handed over to an expert operator upon the type-writer, who will write it out in the shape best suited for the

purpose, and as soon as finished and corrected, this type-written sheet or column will be fitted into a big page perhaps three or four times the size of a printed newspaper. When this "dummy" is full, a photographic copy will be made of it, the camera reducing it in size to the required dimensions of the printed newspaper, and from this negative will be made the gelatine plate for the press. One of the members of Hoe & Co., was asked recently as to the possibilities of the new scheme, and while he admitted that the thing was possible, and might come into use some day, for the present the time required for making the photograph and the gelatine plate would be far greater than the time required to set the type and get a stereotype plate under the present process.

While it is very clear that for cheap work, circulars, handbills, etc., and even perhaps for the cheaper grade of newspapers; such a process may be used very soon, there are certain mechanical difficulties in the way of introducing it for good newspaper work. For instance, the type-writer does not finish its lines evenly as does the compositor with his types. The compositor can increase the spaces between words, or decrease them, so as to make the lines all of equal length. A literal photograph of type-writer work to-day would give very ragged-looking columns. Some method of "justifying" type-writer work may be devised, however, and will probably be before long. In the next place, the time required for making the photograph and gelatine-relief plate is now greater than that required to set the type and make the stereotype. Upon the other hand, the ease and quickness with which this paper form might be "made up," the neatly printed columns being ready to paste or pin into place, would far surpass the making up of type forms and the locking up of the form preparatory to making the stereotype plate.

It has also been suggested by the same inventor, who proposes to use gelatine photographs of a type-written newspaper page, that the headlines, display type, and other ornamental work of a newspaper page might be put in place from printed impressions of the type needed, as no type-writer can give

more than one or two kinds of letters at the most. Another difficulty is, that very few type-writers at present give letters black enough for making a good photographic plate to print from. This, however, is but a detail, and might be overcome.

Perhaps the greatest advantage of the proposed system would be found in instances where a large amount of printed matter had to be used, and compositors were scarce. One man having the copy—a printed page received by mail or type-written page—might, with the aid of his camera and gelatine sheet, make a plate from which he could print any number of copies. For instance, the country editor and publisher, instead of cutting out articles from his exchanges and sending them up to the composing-room, would simply paste them upon his dummy sheet, and when the page was full, proceed to make a photograph from which in a few hours he could get a plate ready to print from. It is evident that here is going to be a tremendous field for the gelatine process. Many of the difficulties of country newspaper offices are due to the compositor or compositors who, when they walk away, leave the editor and publisher helpless. With the type-writer, a pair of scissors, and a camera, the compositor may be dismissed at any moment, provided the typographical appearance of the newspaper is not of the utmost importance.

Such a revolution, however, will not be accomplished before the gelatine process is perfected further than at present.\* At the same time, it is certain that such an improvement will be made, for more than a dozen inventors are working steadily upon it, and rich firms stand ready to help along the work. The late Colonel Richard Hoe, the foremost inventor of this country in printing presses, said a few years ago to the writer, when asked as to the next great step in printing presses: "I have seen the printing press go through a number of revolutions. In my time, newspapers were first printed on hand presses; then came the

rotary press, gradually built up story by story until we had the great ten-cylinder presses which required ten men to feed. Then came the perfecting press, printing from an endless roll of paper, and then the press which printed on both sides of the sheet from one type cylinder. We have got now to a point where there seems to be no further advance in view, but I have every faith in seeing another great step before I die. I have some idea that the next jump will be in the direction of photographing the newspaper upon the sheet of paper as it flies through the press. I don't know how such a thing can be done, but with the instantaneous process of lightning photography, some genius will use it for the newspapers."

Colonel Hoe did not live to see any experiment made in the direction of actual photography of newspapers, his idea being no less than that a newspaper should be a photograph of an original page. The very cost of paper which would take a photograph from a negative would preclude any such scheme at present. But there seems to have been something almost prophetic in his suggestion of photography for the newspaper of the future. Colonel Hoe was always ready to consider any proposed invention, and glad to talk of the possibilities of the future. He had no doubts as to the future of some labor-saving devices that were usually ridiculed, among others the type-setting machines. To-day, after hundreds of thousands of dollars have been spent upon type-setting machines which have proved to be more or less complete failures, machines are being made and used which seem to solve the problem, and the member of Hoe & Co., already mentioned, said that, so far as experts in the business could decide, there was no reasonable doubt as to the eventual triumph of the type-setting machine. Like the printing press, the perfected type-setting machine will be the work of perhaps a hundred different inventors.

Should the gelatine process come into use for making newspaper plates, it will allow of a tremendous, cheapening, and extension of newspapers in small communities where the great and costly perfecting presses can-

\* The author of this paper has done well, but he is not fully posted to date. The improvements he hints at are fully detailed in Mr. Wilkinson's new work on *Photo-engraving*.—Ed. P. P.

not be used at all. As a curious illustration of the fact that the perfecting press has made possible a circulation of newspapers which would have been altogether out of the question without such a press, it is estimated that to do the work upon the hand presses of sixty years ago, now accomplished in one newspaper press-room in this city, with the assistance of seventy-one men and boys, would require 8000 presses and 16,500 workmen and boys. A writer in one of the trade journals devoted to printing recently recalled the fact that in England the sixteen-page octavo tract of 100,000 copies of the "Corn law, or Free Trade Question," by Richard Cobden, printed in 1843, required fifty days' work on hand presses. The press used was a Stanhope press, upon which 2000 copies a day was considered fast work. To-day, a Hoe perfecting machine would do the work easily in five hours. Type composition has made, strange to say, almost no advance in rapidity as compared with the turning out of the printed sheets.

### MR. CARBUTT'S FIXER.

REFERRING to Mr. Pray's useful paper on page 267 of our last number, Mr. John Carbutt, the world-known maker of the Keystone Dry Plates, writes us as follows:

"Mr. Pray's amateur correspondent is mistaken as to my recommending a one to eight solution. I now enclose one of my formula circulars, and the strength of the hypo solution is one I have for a long time given. I have just referred to one of my circulars of 1883, and it reads: fixing bath, one to five of water. Let him try that until he can find something better, and if he will use my hardening and cleaning solution *before fixing*, there is no need of putting the plate into a compound sulphur bath (alum and hypo)."

We quote from Mr. Carbutt's circular as follows: After washing off the developer, immerse the plate in the following hardening and clearing solution:

Water	. . .	36 ounces.
Chrome Alum	. . .	$\frac{1}{2}$ ounce.
Citric Acid	. . .	$\frac{1}{4}$ "

Let it remain three to five minutes, then wash it and place it in the fixing solution:

Hyposulphite of Soda	. . .	8 ounces.
Water	. . .	40 "

Let it remain a few minutes in the hypo solution; after all the bromide of silver appears to be dissolved out, then wash it in running water for not less than one hour, swab off the film with a tuft of cotton, while the water runs over it, then place it away to dry spontaneously.

### PLEASE EXPLAIN.

A FEW years ago your usual request for an article for the PHILADELPHIA PHOTOGRAPHER or *Mosaics* contained a line, which, perhaps, you have reconsidered, and if now given would create a smile on a sphynx, viz., "Not Necessarily Dry." Do you remember it? I thought at the time that from my observations that would have to "crawl in."

It is wonderful to think of the rapid changes in photographic methods, and of the many experimenters to whom the profession is indebted for the great impetus, in quickness, and quality of the results of to-day.

The developer is an everlasting subject, and many articles published are scarcely read by our professional brethren, as a rule. They have it all, so that any addition seems a dead leaf.

But we have not learned all. Many of our present crack methods will oxidize, as they have in the past.

Having a little crank of my own to offer, of course I expect it to be denied, but it will stand explaining.

Many operators add acid to the sulphite of soda before adding pyro, to prevent deterioration, and in so doing add a restrainer that slows the work; of course, I am speaking of portrait work only.

Where we make snap exposures and no rests are used, we want no restrainer.

Now the point I make is this: I keep a stock solution of sulphite of soda at 65° hydrometer test; I add pyro 1-16 for use.

If I put it in a stoppered bottle oxidation will show in an hour, but if kept in an open graduate, perfectly clean, it keeps for days, perfectly clear, and works as if just made up. Why it is so I cannot explain, can you?—W. L. SHOEMAKER.

## THE HUMOR OF IT.

**PATHETIC.**—The very intense negative is now called the "Kathleen Mavourneen" negative. Why? Because "it may be a year and it may be forever" before a print can be made from it.

**LOST, SPOILED, OR BROKEN.**—Wife—I see that Walt Whitman, in one of his recent poems, asserts that nothing is ever lost.

Husband—If that is a fact he ought to tell the country what has become of all the spoiled dry plates.

**VERY MUCH UNSTRUNG.**—Physician (to patient)—You are suffering from nervous prostration, sir. Have you been drinking heavily of late?

Patient—No, sir.

Physician—Business matters trouble you to-day?

Patient—No, sir; I wasn't at the office at all. I've been having my baby's photograph taken.—*Exchange.*

**A FAMILY MAN.**—"Are you a man of fortune, sir?" he said to a wiry little chap, who would keep looking timidly first one side and then the other, while being posed for his picture.

"Yes, sir," was the reply. "My wife and her four daughters are all amateur photographers."

## IN HONOR OF DR. T. L. PHIPSON.

THE following paragraph appeared in the London *Photographic News*, April 20th.

## ELECTRICITY AND LIGHT.

**SIR.**—The paragraph "Influence of Light, etc.," in your issue of April 13th, quoted from *The Philadelphia Photographer*, is a translation of a recent paragraph in my English correspondence to the *Moniteur de la Photographie* of Paris, which paragraph appears to have been taken without acknowledgment by the Philadelphia journal.

During the twenty years or so that I have written the "Correspondence d'Angleterre" in the French journal just named, I have seen hundreds of my paragraphs taken in an unscrupulous manner, especially by

Belgian and American prints, and I have rarely made any observations on the subject; but when an old and established English journal like the *Photographic News* reproduces such an article, and quotes the American journal as the original source of information, I think some notice should be taken of the fact. I am, sir, your obedient servant,

T. L. PHIPSON, M.B., Ph.d., F.C.S.,

English Correspondent to the

*Moniteur de la Photographie.*

*Laboratory of Analytical Chemistry, Putney, April 16th.*

**PS.**—I did not spell the names Somerville and Moricini as they are given. It may be as well to state that as early as 1825, Mr. Christie, a Fellow of the Royal Society of London, found that when a magnetic needle is caused to vibrate under the influence of the solar beam, the result is to augment the rate of oscillation, and to bring the needle more rapidly to rest. Sir William Snow Harris, some years afterward, found this did not occur when the needle was caused to vibrate in a vacuum.

The "steal" alluded to by our esteemed colaborer appeared in "The Open Corner" on page 139 of our issue of March 17th, and we are glad it did, for it brings to us, after many years of waiting, an answer to the long unanswered conundrum, *Who is Dr. Phipson?* For about twenty years we have read the English correspondence in the *Moniteur de la Photographie* signed simply and modestly "Dr. Phipson"—no initial, no address. We have often said to ourselves, mentally, "Whoever writes those letters, has the clearest, most practical, and most comprehensive ideas, of any photographic writer living. But we never hear of him at any of the society meetings—who is he? Does he write under an assumed name? Who can tell?" Now at last we have found that he is not a myth, but a real human being with the sensitiveness of a man who can complain when—he is stolen from. And we believe ourselves to be manly enough to acknowledge a mistake when we have made one. Our readers have been familiar with the name of "Dr. Phipson" for many years. Many of his

excellent writings have appeared in our pages, and usually they have appeared with his name. (For example see page 150 of the same issue of which he complains.) But as Dr. Phipson is somewhat of a paragraph writer, we assort the translations of his writings for the various departments of our magazine. And in the process of cutting them apart sometimes our printer forgets to add the name of Dr. Phipson. We make apology and shall hereafter try to sin no more. But the sorrow over the past is lessened and the suffering from it borne more patiently, because it has enabled us to explain who Dr. Phipson is.

We do not think any one has honored him by translation so much as we have.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

THE London *Amateur* supplement for April 20th, has a half-tone photo-engraving

called "Little Chippers." It is a cute subject well managed by Mr. J. Gale, but badly photo-engraved. Certainly our people are going ahead on the half-tone block processes in this country. Witness those in our own current number.

A STEREO Exchange is started in England. We understand that the stereoscopic camera business has largely revived lately, and that this summer will produce more stereoscopic negatives than have been made for years.

A PHOTOGRAPH of the caving in of a mine was made recently in France by pushing a camera and a battery of electric lights into the break. Several successful negatives were made.

MR. RICHARD ANTHONY has returned from Europe laden with points for the new annual. We welcome him home.

## Editor's Table.

THE second instalment of Dr. Just's paper on printing will appear in our next number.

MR. A. T. PIERCE, of Cavendish, Vt., has favored us with a number of views of the late railroad accident at Rockingham. They are the best accident views we have seen, on account of the choice of time when they were taken, and artistic choice of position. Mr. Pierce uses a Darlot single view lens, and No. 30 Cramer plates. All snap shots.

SOUVENIRS.—This is the season for advertising and selling souvenirs. MR. ADOLPH WITTMANN, 58 and 60 Reade St., New York City, is the largest manufacturer in this country.

MR. C. E. ORR, Sandwich, Ill., says: "I have taken your magazine for twenty years and expect to keep right on taking it as long as I continue in photography."

MR. E. F. EVERITT, of Grants Pass, Oregon, acknowledges the receipt of his birthday present of *Quarter Century* through the enterprise of his daughter, and writes us that he has been making

pictures for twenty-six years. We hope he may last another quarter of a century.

THE *Cosmopolitan* magazine not only uses photo-engraving largely for its illustrations, but is also printing a number in colors. The May issue contains an article on the "Pedigree of the Devil" thus illustrated.

"MARKET DAY" is the title of a very creditable composition by Mr. JOHN BARTLETT, of Philadelphia. It exhibits a good deal of the German feeling for art. A copy comes to us reproduced by the Ives process.

The *Art Interchange*, New York City, is the best paper of its kind for the art student to take. It is ably edited, handsomely and profusely illustrated, and its articles are plain and easily understood.

MR. W. H. JACOBY, of Minneapolis, Minn., called upon us recently for conference on the subject of the convention. He is satisfied that there will be an earnest attendance of photographers, even if it is not quite as large as it has

been at former conventions. Preparation is being made to "treat the boys well."

MR. W. F. VAN LOO and Mr. F. J. TROST, of Toledo, Ohio, have formed a co-partnership instead of cutting each others throats, and will soon open a new studio which will be a credit to the city. They will have two floors each 25 x 85 feet, iron and glass front, second floor circular front receding five feet each side. They issue a price list of their work and adhere to it.

A ROUNDABOUT TRIP.—Miss LUCY ELLIOTT KEELER, literary editor of the *Fremont Journal* of Fremont, Ohio, has issued a very pretty account of a recent excursion, wherein she describes her enjoyment at the different museums, art collections, and other places of refinement, as well as the places of nature, visited by her. She writes in a fresh, entertaining style, and besides being a clever writer is an enthusiastic amateur photographer.

MR. GUERIN's excruciating pictures on our last issue created a sensation in all quarters. In answer to many queries, permit us to say that the original pictures are full sheet and can be procured of Mr. Guerin, wholesale and retail.

ON THE TRACK OF ULYSSES.\*—Some time ago the *Century Magazine* sent an æsthetic detective to the Greek islands, first, to gain more particular information as to the romantic journey of that primary explorer Ulysses; and, second, if possible, to make out the real story of the Venus de Milo, which attracts so many visitors and admirers in the Louvre. The aforesaid detective was a gentleman whose name has been familiar to the lovers of the photographic art for over twenty years, Mr. W. J. STILLMAN, who is still a regular contributor to photo literature and an enthusiastic amateur. His camera accompanied him on these excursions. After visiting from place to place with the *Odyssey* as his guide book, he records as the sum and substance of his wanderings that the site known as Polis is where Ulysses lived, and that it was well-known to Homer from personal inspection. This part of the beautifully printed

work is illustrated by a number of *Century* engravings from Mr. Stillman's own photographs, including The Rugged Western Coast of Scheria, The Island of Corfu from the King's Garden, The Site of Ithaca, The School of Homer, and a number of other beautiful localities that belong to the Grecian islands. His "Studies of Greek Boats" insinuate that he employed them instead of the raft on which Ulysses set forth.

In the search for the Venus, Mr. Stillman is more properly in his element. He is well known as one of our best art critics, and he undertook this commission with all the zeal and earnestness that characterizes his work generally.

He visited the site of old Melos where the Venus was found by a peasant while at work, and concluded that Melos was only the hiding place of the noted marble. It originally stood in the little temple of Niké Apteros, whence it was carried to Melos for preservation, as the mummies of Egypt were removed for safe-keeping. Coming to this conclusion, the distinguished author tries to solve the question as to what the statue was. His belief is that it was originally a Victory holding a shield and pen in hand, in the act of recording, or having just written, something upon it. Although the beautiful statue is armless, Mr. Stillman proves his case by presenting photographs of it, front and side view, side by side with photo-studies of the human figure similarly posed. These illustrations are exceedingly interesting and artistic. It is astonishing with what similarity the lines of the drapery and the lines of the figure are composed and how closely in imitation of the original statue. There are over forty illustrations in the book, including engravings of many of the principal Venuses and Victories of the Grecian antique, together with broken parts thereof. The work is admirably printed, of the size of Burnet's *Art Essays* (8½ by 11), has 106 pages, and is enjoyable not only as an æsthetic treat, but as an entertaining and instructive work. We recommend it especially to the students of art and to the lovers of Homer.

THE new quarters of the Brooklyn Camera Club were inaugurated on Thursday evening May 3d.

*Practical Essays on Art.* By John Burnet. Arranged and edited by Edward L. Wilson. 1 vol., quarto, boards, illustrated: Price, \$4.00. New York: Edward L. Wilson, 1888.

John Burnet, a Scottish painter, engraver, and author, first attracted public attention in the

\* On the Track of Ulysses, together with an excursion in quest of the so-called Venus of Melos. Two studies in archæology made during a cruise among the Greek islands, By W. J. Stillman. Published by Houghton, Mifflin & Co., Boston and New York. Price, \$4.00.

earlier half of this century through his excellent rendering as an engraver of the works of Sir David Wilkie. In literature he was distinguished by the authorship of several works on art, the lives of Rembrandt and J. M. W. Turner being some of his later efforts.

In the years of his life from 1822 to 1837 appeared three works: "Practical Hints on Composition in Painting," "Practical Hints on Light and Shade in Painting," and "An Essay on the Education of the Eye." The practical value of these works both as an aid to the artist in executing and a help to the amateur in understanding, has always been recognized, but the scarcity of the original copies and the consequent high cost has placed them out of the reach of many who desired them.

The public is indebted to Mr. Edward L. Wilson for the present volume, which combines the three essays above mentioned within the covers of one book. The value of the whole may be estimated by the number of the plates, each one of which is described in detail, their chief points noted and characteristics defined and criticised.

There are nine plates on "Composition," eight on "Light and Shade," and in the last essay, on the "Education of the Eye," seven plates appear besides numerous cuts in the text. The examples used are selected from the works of Claude, Rubens, Rembrandt, Correggio, Guido, West, Vandyke, and many others, as well as specimens of the author's own production. This explanation may seem unnecessary, but those who are not familiar with the original edition will find it serviceable. The reproduction of the work is by the Photogravure Co., of New York, and is done entirely by photo-lithography, and is an excellent specimen of mechanical skill. The plates, though well rendered, are slightly inferior in execution to the text, which appears in such clearness that one scarcely realizes that it is not printed from type. In teaching the entire elements of art, and presenting the best examples for study, the work is invaluable to every professional or amateur artist as well as photographer.—Comstock's *Building*.

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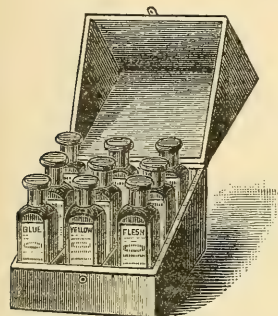
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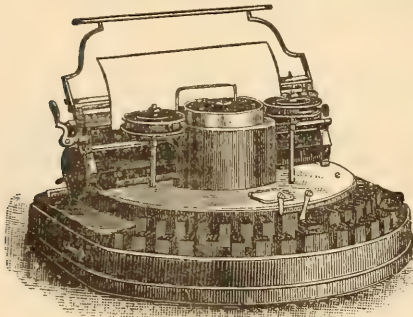
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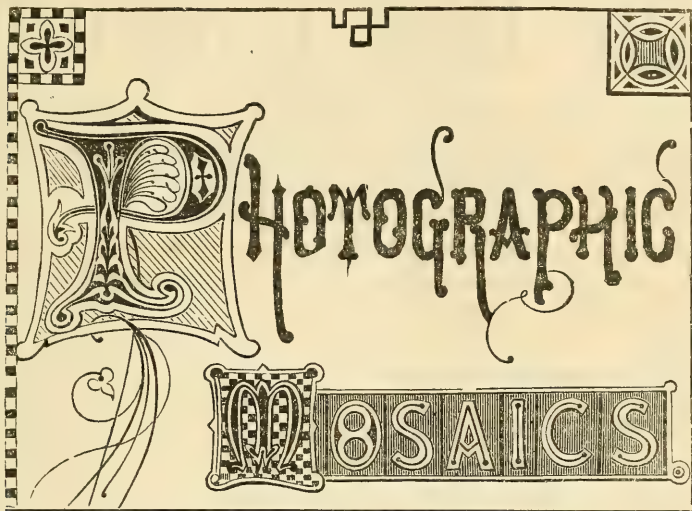
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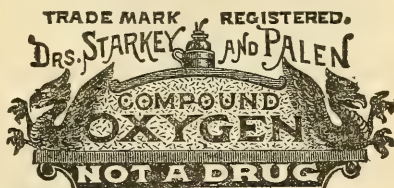
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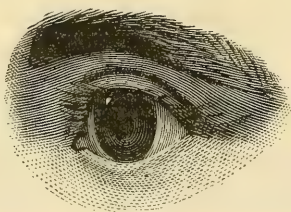
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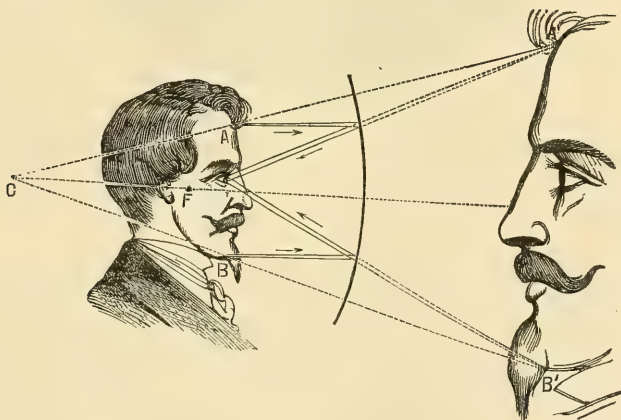
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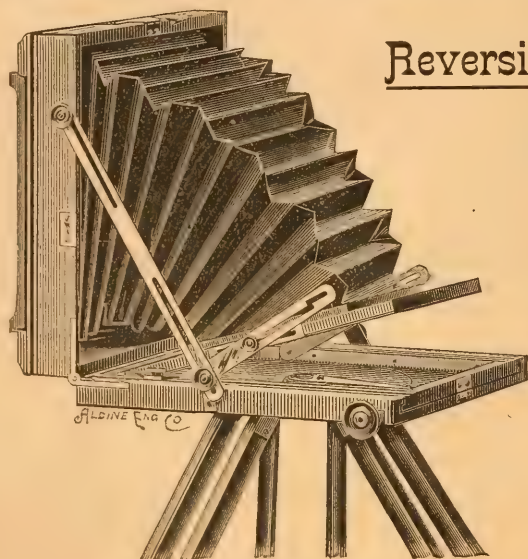
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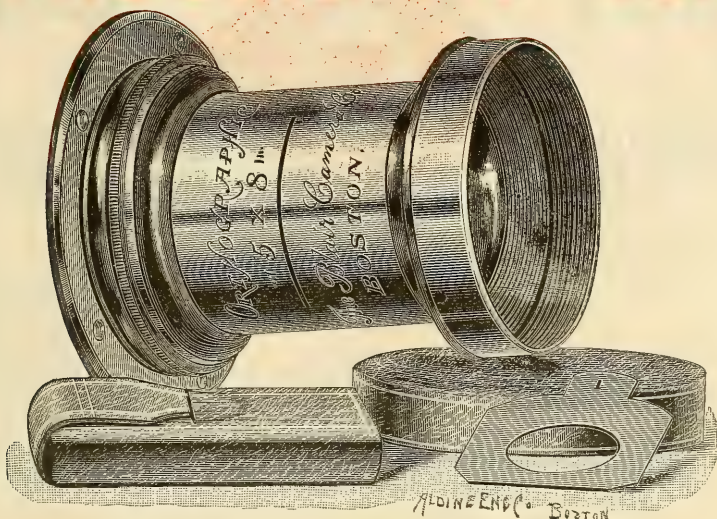
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1	3¼ x 4¼		⅞ in.	4¾ in.	5 in.	\$15.00
2	4 x 5	3¼ x 4¼	1 in.	5⅞ "	6¼ "	20.00
3	5 x 8	4¼ x 5½	1¼ "	7½ "	8 "	30.00
4	6½ x 8½	5 x 7	1½ "	9¼ "	10 "	35.00
5	8 x 10	6½ x 8½	1¾ "	11 "	12 "	45.00
6	10 x 12	8 x 10	2 "	13⅞ "	14¼ "	60.00
7	11 x 14	10 x 12	2¼ "	15¼ "	16½ "	70.00
8	14 x 17	12 x 15	2¾ "	17½ "	19 "	125.00
9	20 x 22	17 x 20	3 "	20 "	22 "	150.00

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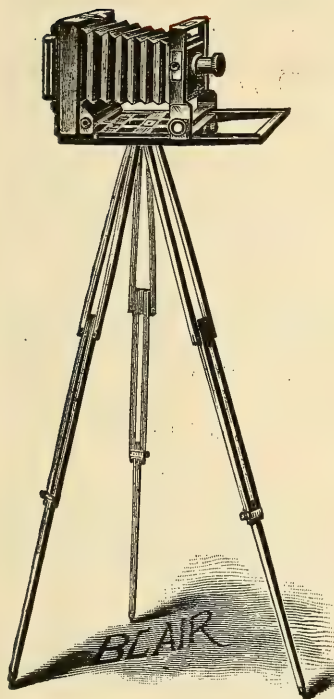
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WILL. H. LEIGH.

(Signed)

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1616. Wishing you continued success.

see to it that no one draws a focus on it, and runs away, like the party did with my 5 B No. find it just takes the dilapidated linen from off the shrubbery. I am delighted with it, and will etc., I always feel confident of success, and since I received the 6 B some ten days ago, I do without it. When I get calls to go quite a distance from home to make large groups, views, Dear Sirs: After three years' experience with the Suter Lens, I don't know what I would

ALLEN BROS.

BEAVER FALLS, PA., November 9, 1887.

**COPY OF LETTER FROM W. H. LEIGH TO MESSRS. ALLEN BROS.,  
DETROIT, MICH.**

W. KNOWLTON.

(Signed)

Respectfully,

shelving one of the best "D ——" extra 4 x 4 portrait lenses, that cost four times as much.

I have had the lens for nearly two years, but never exposed it on a head in my gallery until within the last month, using it entirely for outdoor work. I shall continue its use under my light, sharp from the end of the chin to the back hair over the ear. If it is of any use to you, you are welcome to it, and this statement with it.

16 stop, in five seconds (poor light and slow plate at that). You will see that it is *microscopically* be only what you see daily, viz., a 7½ inch head, made with a No. 5 B Suter Lens, with the No. GENTLEMEN: I send you by to-day's mail a curiosity, that is, it is such to me; to you it may

ALLEN BROS.

New York, November 23, 1887.

**Copy of Letter from W. KNOWLTON, Photographer, Studio, 335 Fourth Ave.,  
New York, to Messrs. ALLEN BROS., Detroit, Mich.**

WILL. A. TRIPLETT.

(Signed)

Truly yours,

I expect to make some very fine work with my No. 6.

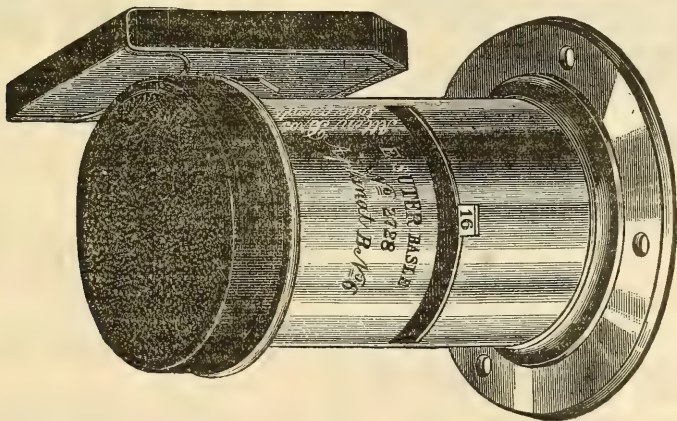
the No. 6 B and return you the No. 4 A by to-day's express.

alongside of a No. 6 ——. The latter lens does no such work as either of the Suters. I keep Dear Sirs: The No. 6 B and 4 A Suter Lenses you sent me have been carefully tested

MESSRS. ALLEN BROS.

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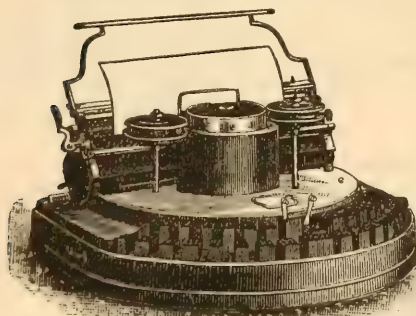
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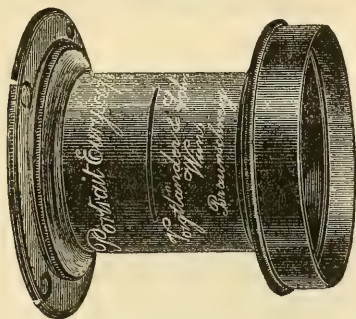
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The front and back combinations being perfectly symmetrical, superior marginal definition and perfectly even illumination of the plate can be obtained, and, with the same length of focus as heretofore, a larger field is covered and the size of the image increased, the resulting picture being absolutely free from distortion.

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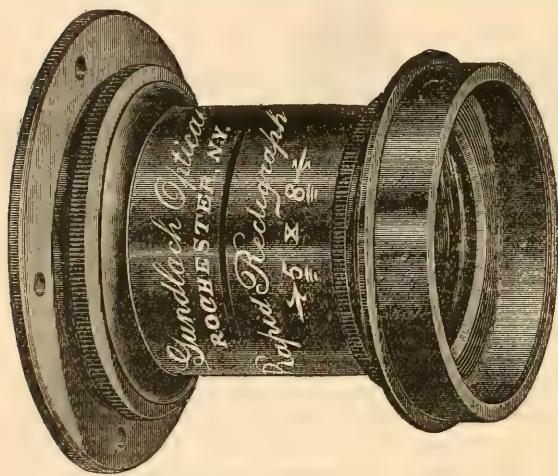
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1	4 x 5	3 1/4 x 4 1/4	1	5 1/2	6 1/4	\$20 00
2	5 x 8	4 x 6	1 1/4	7 1/2	8	30 00
3	6 1/2 x 8 1/2	5 x 8	1 1/2	9 1/4	10	38 00
4	8 x 10	6 1/2 x 8 1/2	1 3/4	11	12	50 00
5	10 x 12	8 x 10	2	13 1/2	14 1/2	64 00
6	11 x 14	10 x 12	2 1/4	15 1/2	16 1/2	76 00
7	14 x 17	12 x 15	2 3/8	17 1/2	19	125 00
8	17 x 20	16 x 18	3	20	22	150 00

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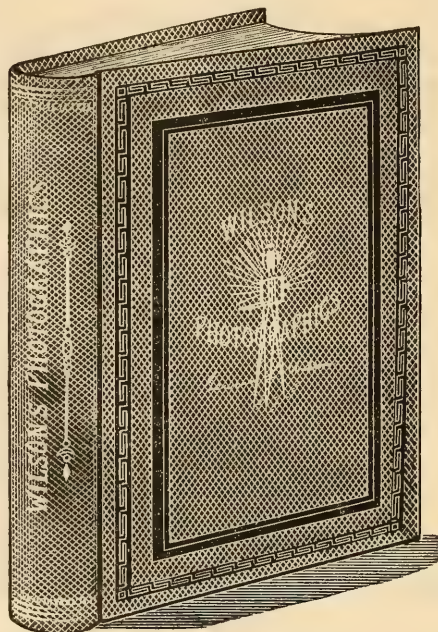
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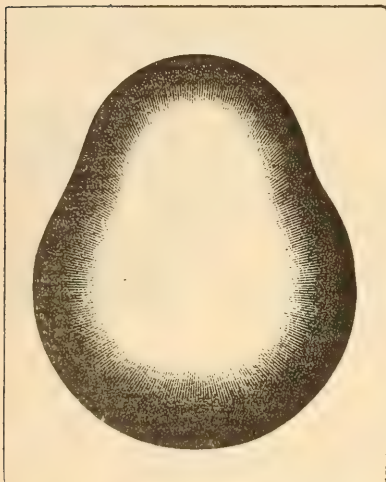
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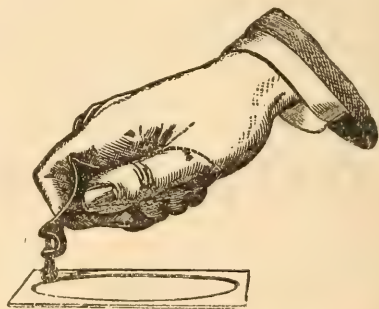
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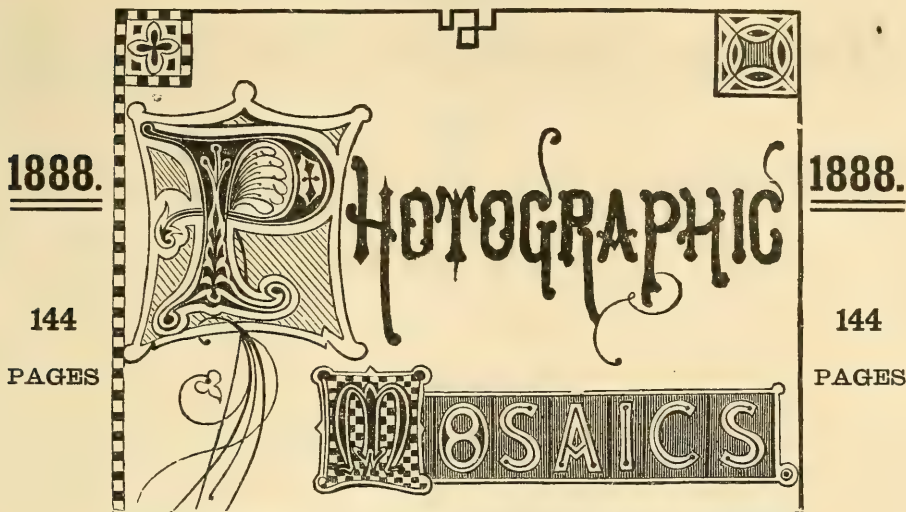
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THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXV.

JUNE 2, 1888.

No. 323.

## ON THE DISK OF CONFUSION AS PRESENT IN PHOTOGRAPHIC OBJECTIVES.

BY J. J. HIGGINS, A.M., M.D.  
(Copyrighted 1888.)

WHEN the ground glass of the camera is adjusted to the focus of an object, other objects more or less distant from the object focussed on, are indistinct in outline, or, as usually expressed, deficient in sharpness and definition. This is due to the **disk of confusion** which exists in all such cases being greater than is undiscernible by ordinary vision or inspection. If, with Dallmeyer, we take

the  $\frac{1}{100}$  of an inch blurring (for that is what

the confusion disk in reality is) as sufficiently small, our tables will of course be far different from those based upon a less error, as, for instance, on only 0.1 mm. (the tenth of a

millimetre, equal to the  $\frac{1}{250}$  of an inch) as

considered necessary by Eder.

That the  $\frac{1''}{100}$  is easily discernible and

would be too great an amount of blurring for fine work, does not admit of question. For detective exposures, where the element of sharpness is by no means such an essential factor, it is undoubtedly adequate, and in general is the usual basis of calculation.

The laws governing the formation and magnitude of such disk—the laws by which the greater and less distances of objects from that in absolute focus may be determined and yet have them in apparently

equal focus (this difference between the greater and less distances being known as the depth of focus of a lens)—the laws applicable to it with lenses of differing foci and corresponding opening, and again with lenses of differing foci and varying aperture, or again, as affected by simple alteration of aperture, accompanied by equations and formula for solution—will make a subject having quite an appropriate name easily understood, but especially so when by the aid of diagrams its elucidation is assisted.

In the consideration of the Disk of confusion it is to be noticed first of all that it is not a simple disk, but of a compound nature, being composed of an **anterior** and a **posterior** disk united in the focal plane of the object focussed upon. When these are of unequal magnitude, we have in addition that which is known as the **circle of confusion**. If, *e. g.*, two coins of unequal size are centrally superimposed the one upon the other, the marginal difference between the two is the analogue of the circle of confusion.

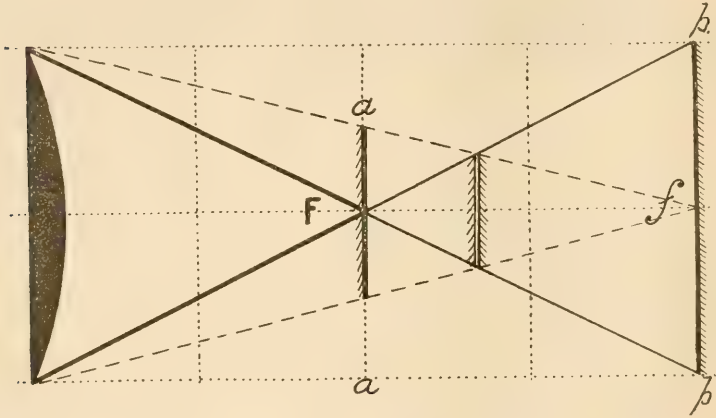
In the subjoined diagram let  $F$  = focus of lens,  $f$  the focus of a near object, and  $f'$  (not lettered on diagram) the difference between the two, *i. e.*,  $f - F$ . Being drawn to scale, if diameter of lens is regarded as two inches,  $F$  will equal two inches,  $f$  four inches, and  $f'$  (equals  $f - F$ ) two inches. Furthermore  $a a$  equals one inch, and  $p p$  two inches.\*

\* The heavy full lines indicate the rays coming (from a distance) to a focus at  $F$  the focal

If now an object in the far distance was focussed on, the focus would be at  $F$  (or at least virtually so), and the ground glass of the camera be there situate. A nearer object,

to camera have its focus at  $f$ , and the disk of confusion caused by such nearer object to exist on the ground glass placed at  $F$  and represented in diagram by  $a a$ , is termed the

DIAGRAM 1.



Confusion Disks.

however (in accordance with the law that "as an object approaches a lens its image recedes from it"),\* would on a given proximity

point of lens, and then continued as a lighter full line for illustration of posterior disk. The dash lines and line marked  $a a$  are for illustration of anterior disk. The double shaded un-lettered line is for subsequent consideration.

\* For obtaining the distance of image ( $\rightarrow \ominus$ ) on ground glass from lens (centre), the distance of object ( $\ominus \rightarrow$ ) being given, divide the distance of object, by the distance of object less the focus divided by the focus

$$\rightarrow \ominus \rightarrow \quad \ominus \rightarrow \quad \ominus \rightarrow \quad F'$$

Or again

$$\rightarrow \ominus \rightarrow \quad \ominus \rightarrow \quad \ominus \rightarrow \quad F'$$

To find distance of object, the distance of image (ground glass) from lens (centre) being given: divide the square of the focus, by the distance of ground glass from the lens less the focus, and to the quotient add the focus.

$$\ominus \rightarrow \quad \frac{F^2}{F' - F} + F'$$

Or,

$$\ominus \rightarrow \quad \frac{F^2}{F' - F} + F'$$

Or again

$$\ominus \rightarrow \quad \frac{F^2}{F' - F} + F'$$

proximal or anterior disk of confusion.

If, on the other hand, the ground glass of camera was focussed on a nearer object, as *e. g.*, on one whose image would be at " $f$ ," then the far distance would produce the confusion disk  $p p$ , and this is known as the **distal or posterior disk of confusion**. Unlike the anterior confusion disk, it is determined by the rays from an object (*full lines in diagram*) coming to a focus at a point nearer the lens " $F$ ," and then crossing and being continued unto the ground glass set at a greater length of focus " $f$ " for a nearer object. As with the anterior disk its magnitude is dependent upon the opening or aperture of lens and the difference between the respective foci of the objects; the influence, however, of aperture and  $f'$  being far different in the case of the one as compared with the other. As seen, it is larger than the anterior disk, and therefore when there is no special reason to the contrary, it is evidently preferable to focus on the distance.

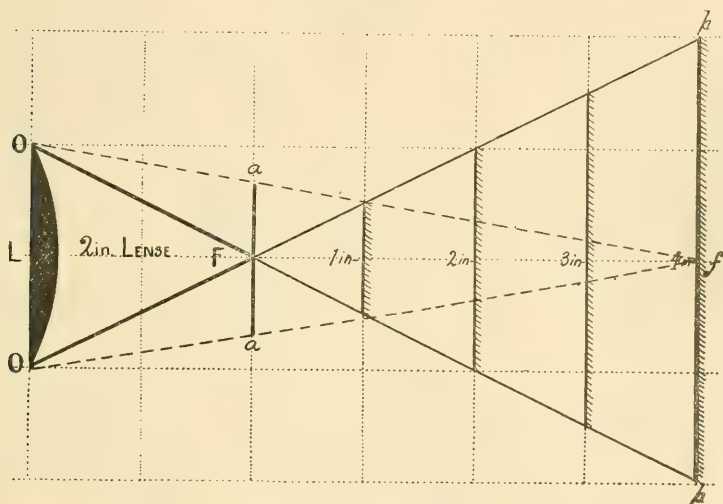
#### CIRCLE OF CONFUSION.

The Circle of Confusion is the difference between the two disks. If, as should be, the ground glass is at such intermediate point that the posterior disk is equal, and

only equal, to the anterior disk as shown by double shaded line, then no circle of confusion exists. And, although subsequently more special attention will be directed thereto, it may be well to notice the inequality of its location between the foci ( $F$  and  $f$ ) of the two objects.

holds good for all lenses whether of shorter or longer focus. We have then the posterior confusion disk with all lenses irrespective of focus equal on *full opening* to its distance from " $F$ " or otherwise expressed to " $f$ ," and that its size increases and decreases proportionately with such distance.\*

DIAGRAM 2.



Posterior Confusion Disk.

The posterior confusion disk seen at " $f$ " (Diagram 2) is that caused by a far distant object, the focus of which is at " $F$ ," to be formed upon the ground glass of camera set to the focus of a nearer object at " $f$ ." In the diagram  $F$  represents the focus of lens = two inches, and " $f$ " the focus of nearer object = six inches. The difference between the two ( $f - F$ ) equals four inches, and is known as  $f'$ . It is apparent on inspection of diagram that with full opening of lens\* the posterior confusion disk  $p p$  is equal to its distance, (that of the ground glass) from  $F$ —i.e., is equal to " $f'$ "; and that the same is true of each or any distance—e.g., whether of four inches, three, two, or one inch, or other focus. And this law

The mathematical demonstration (as diagrams are mainly only illustrative) is based upon the similarity of the triangles  $O F O$  and  $p F p$ . For from such similarity we have

$$LF : Ff :: OO : p p.$$

But  $LF = F$ ,  $Ff = f'$ ,  $OO$  = full opening of lens  $O$ , and  $p p$  equals the posterior disk, and the proportion becomes by substitution  $F : f' :: O : \text{posterior disk}$ . Whence the equation: the posterior disk =  $\frac{O \times f'}{F}$  reduced by cancellation, as  $O$  and  $F$  are always like quantities, to the posterior disk =  $f'$ .  
Q. E. D.

By reduction of aperture as indicated by dash lines (diagram 3) it is evident that the posterior confusion disk is reduced in size. This reduction of aperture it must be borne in mind exists in all lenses as sent out by their makers, the peripheral portions of

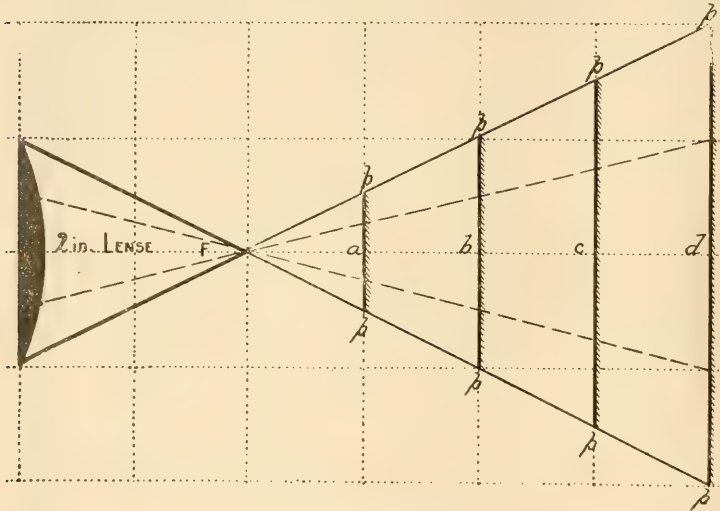
\* The term full opening of lens is used in these pages as expressive of a lens with diameter equal to radius of focus, and must not be confounded with the term as used when speaking of lenses mounted for use.

\* Consequently the larger the lens with " $f$ " equal, the less in proportion is its size.

lenses being not only useless but harmful to their performance, and consequently ablated. Again, that the ratio of such reduction is pro rata with that of the aperture, as seen at *a*, *b*, *c*, and *d*. The reduction represented

ply it by the lineal diameter of the aperture divided by *F*,—equals  $\frac{A \times f'}{F}$ , we have its magnitude at said given distance with or on such reduction of aperture.

DIAGRAM 3.



Posterior Confusion Disk.

in diagram is one-half  $\frac{F}{2}$ ,\* and the perpendicular shaded lines *p p* show the posterior confusion disk at any and all points to be between dash lines of exactly half the size of those present between full lines. If the reduction of opening was one-quarter  $\frac{F}{4}$ , then the corresponding posterior confusion disks would be of only one-quarter the size, and so on. If now, we divide the posterior confusion disk as existing at any given distance from *F* on full opening of lens, by the denominator of the intensity ratio as expressed by  $\frac{F}{n}$ , "*n*" representing the numeral—equals  $\frac{f'}{n}$ , or multi-

\* To obtain the lineal size of stop, the intensity ratio  $\frac{F}{n}$ , being given, divide the greater number (giving to *F* its value) by the lesser, and place accordingly over or under "unity."

To obtain the intensity ratio of stop  $\frac{F}{n}$ , the lineal size being given, divide the focus by lineal diameter of stop.

## Formula.

Size of posterior confusion disk for a given distance from *F* on reduced aperture,  $\left\} = \frac{A \times f'}{F} \text{ or } \frac{f'}{n}$

To obtain the distance of screen from *F* (*f'*) for any given magnitude of the posterior confusion disk on reduced aperture, multiply the given magnitude by "*n*."

## Formula.

Distance from *F* (*f'*) of posterior confusion disk for any given magnitude on reduced aperture,  $\left\} = \text{the required disk} \times "n."$

To obtain the distance from *F* (*f'*) at which a posterior confusion disk would on full opening be equal to (and only so) a given one existing with reduction of aperture, divide the *f'* of reduced aperture by "*n*."

Again, to obtain the distance of screen from *F* (*f'*) at which the posterior confusion disk would on reduction of aperture be equal to (and only so) a given one existing with full opening, multiply the *f'* of full opening by "*n*."

If " $f$ " is desired add  $F$  to the answer of either formula.

#### POSTERIOR CONFUSION DISK IN LENSES OF VARIOUS FOCUS.

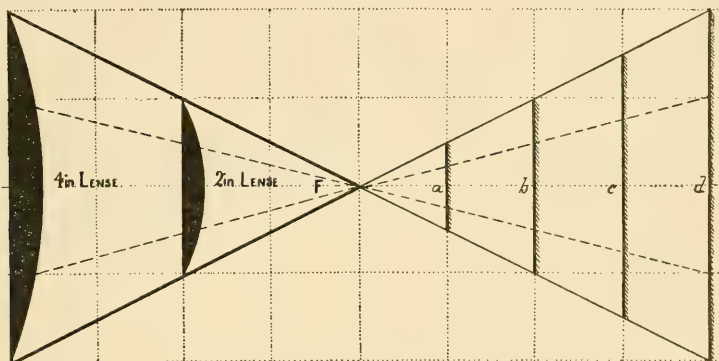
On full opening and at the same distance from  $F$ , the posterior confusion disk is of one and the same size irrespective of focal

#### Formula.

The posterior confusion disk in all lenses irrespective of focus is on equal proportional reduction of aperture one and the same for a given or like distance from  $F$ .

} and  $= \frac{A \times f'}{F'}$   
of either lens.

DIAGRAM 4.



Posterior Confusion Disk.

length of lens, and equals the opening of lens multiplied by " $f$ " divided by  $F$ .

#### Formula.

Posterior confusion disk in all lenses of whatever focus on full opening, " $f$ " being the same is of equal magnitude.

} and  $= \frac{O \times f'}{F'}$

As, however,  $O$  and  $F$  are equal quantities they may be cancelled and the formula becomes

Posterior confusion disk in all lenses of whatever focus on full opening, " $f$ " being the same is of equal magnitude.

} and  $= f'$ .

Or in other words, if with either a 2, 4, 10, or 20 inch or other focal length of lens, the distance of screen from  $F$  was on full opening one inch, the size of the posterior confusion disk would in each case be one and the same, viz., one inch. It results also that when the reduction of aperture is in equal proportion, as expressed by  $\frac{F}{f'}$  be-

tween two or more lenses of differing foci, the same law holds good.

#### POSTERIOR CONFUSION DISK IN LENSES OF DIFFERENT FOCUS AND VARYING APERTURE.

Here the same formula is determinative.

The Posterior Confusion Disk in all lenses of whatever focus or aperture.

}  $= \frac{A \times f'}{F'}$

With apertures alike,\* and distance of screen the same, it is equal in each and every lens.

With dissimilar apertures,† and distance of screen the same, it increases in ratio with enlargement of aperture, and "mutatis mutandis" the reverse.

With  $f'$  in corresponding ratio, i. e., with the distance of screen not numerically but correspondingly the same, the distance with the one lens being to its focus as the distance with the other lens is to its focus, it increases or decreases (as the case may be) in the ratio of focus to focus, e. g., for an equal reduction of size of object, say twice, " $f$ " the focus on ground glass with a two-inch lens would be three inches and  $f'$  ( $= 3-2$ ) one inch; with a four inch lens,

\* As expressed by  $\frac{F}{f'}$ . † Or aperture.

six inches and  $f'$  ( $= 6-4$ ) two inches; with a six inch lens, nine inches and  $f'$  ( $= 9-6$ ); three inches, and with an eight inch lens, twelve inches and  $f'$  ( $= 12-8$ ) four inches, represented in Diagram 4, respectively, by  $a$ ,  $b$ ,  $c$ , and  $d$ , continuous lines indicating full opening, and dash lines reduced aperture.\*

#### Formula.

The posterior confusion disk in all lenses of whatever focus either on full opening or like reduction of aperture as expressed by  $\frac{F'}{a_n}$  with  $f'$  in corresponding ratio.

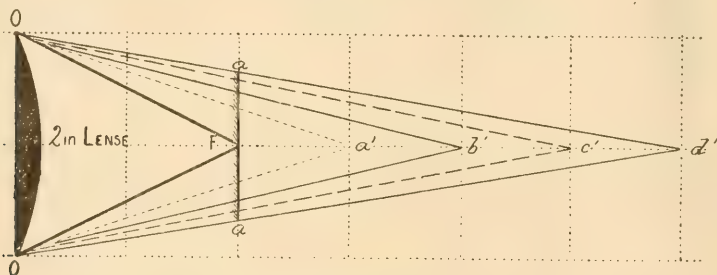
varies in the ratio of lens to lens.

" $f'$ " (the distance of " $f$ " the focus of nearer object from  $F$ ). For as shown on inspection of Diagram 5 with " $f$ " at  $a'$  (1 inch) it equals  $\frac{2}{3}$  inch, at  $b'$  (2 inches) it equals 1 inch, at  $c'$  (3 inches) it equals  $1\frac{1}{3}$  inches, and at  $d'$  (4 inches)  $1\frac{2}{3}$  inches.\* In the case of the posterior disk the distance of " $f$ " was the chief factor; with the anterior disk it is not.

#### COMPARATIVE EXHIBIT.

Disks.	$f'=1$ in.	$f'=2$ in.	$f'=3$ in.	$f'=4$ in.
Anterior	$\frac{2}{3}$ in.	1 in.	$1\frac{1}{3}$ in.	$1\frac{2}{3}$ in.
Posterior	1 in.	2 in.	3 in.	4 in.

DIAGRAM 5.



Anterior Confusion Disk.

#### ANTERIOR CONFUSION DISK.

This, as previously stated, is formed by the image of a nearer object upon the ground glass of camera set to the focus of a more distant one (Diagram 1), and is determined by the focal plane of the image (ground glass) intersecting the lines converging from the circumference or opening of the lens to a point " $f$ " at which the nearer object would be in focus. Differing from the posterior in its causation (the anterior by lines converging to a focus, the posterior by lines diverging from a focus), it is found that likewise it is dissimilar, in that it does not increase and decrease "*pari passu*" with

Its mathematical demonstration is based upon the proportion

$$aa : OO :: f' : f$$

$$\therefore aa = \frac{OO \times f'}{f} \text{ or its equivalent } \frac{OO \times f'}{f + f'}$$

$$\text{and } f = \frac{OO \times f'}{aa}$$

For reduction of aperture we have but to replace  $OO$  in formula by  $A$ , and the expression for the anterior confusion disk in any lens on reduction of aperture is

#### Formula.

$$\text{Anterior confusion disk in any lens on reduction of aperture,} \quad \left| \begin{array}{l} A : f' \\ f \\ \text{or its equivalent} \\ A : f' \\ f + f' \end{array} \right|$$

\* A two and four inch lens is only given in diagram, the disks of which are  $a$  and  $b$ . The disks  $c$  and  $d$  are from a six and eight inch lens, they, however (from want of space), not being represented.

\* By measurement, "*per scale of drawing*,"  $aa$  between dotted lines equals  $\frac{2}{3}$  inch, between full lines 1 inch, between dash lines  $1\frac{1}{3}$  inches, and between external full lines  $1\frac{2}{3}$  inches.

It will furthermore be noticed that the reduction in size of the anterior confusion disk is in direct ratio with that of the aperture. In diagram 6 the reduction of aperture is one-half, and the disk with " $f$ " at the like distances of  $a'$   $b'$   $c'$  and  $d'$  is seen to be and is of only one-half the size.

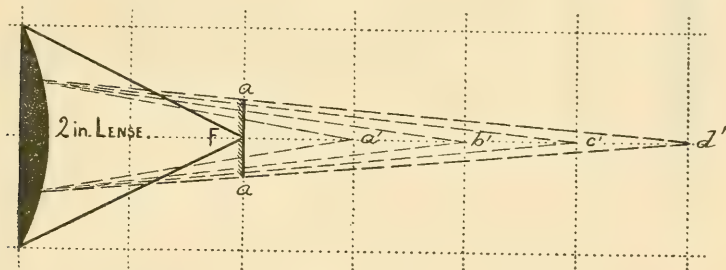
The general formula for the anterior confusion disk in lenses of all foci and every reduction of aperture, is then

*Formula.*

$$\left. \begin{array}{l} \text{Anterior confusion disk in} \\ \text{all lenses of whatever} \\ \text{focus or aperture,} \end{array} \right\} = \frac{A \times f'}{f}$$

With " $f$ " increasing in proportionate ratio to lens, as instanced in the case of the posterior confusion disk, *i. e.*, for a reduction of image one-half " $f$ " with a two inch lens would be one inch, and the ground

DIAGRAM 6.



Anterior Confusion Disk.

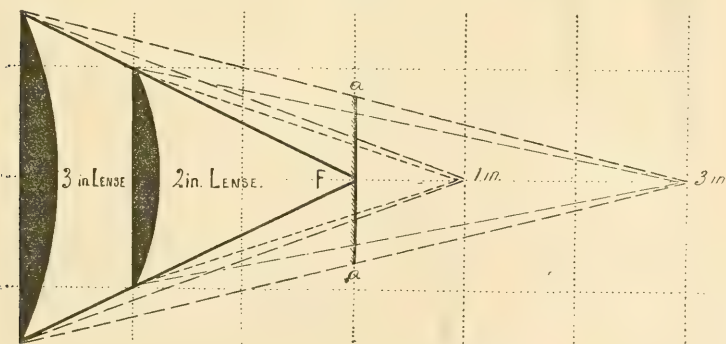
*Anterior Disk, Full Opening.*

2 in. lens	with $f'$ 1 inch	dotted lines = $\frac{3}{8}$ inch.
3 in. lens		dotted lines = $\frac{3}{4}$ inch.
4 in. lens		by formula = $\frac{4}{5}$ inch.
6 in. lens		by formula = $\frac{6}{7}$ inch.
2 in. lens	with $f'$ 3 inches	dash lines = $1\frac{1}{5}$ in.
3 in. lens		dash lines = $1\frac{1}{2}$ in.
4 in. lens		by formula = $1\frac{5}{8}$ in.
6 in. lens		by formula = 2 in.

*Anterior Disk, Reduced Opening.*

$\frac{F}{2}$		
2 in. lens	with $f'$ 1 inch	dotted line = $\frac{1}{8}$ in.
3 in. lens		by formula = $\frac{3}{8}$ in.
4 in. lens		by formula = $\frac{3}{5}$ in.
6 in. lens		by formula = $\frac{3}{7}$ in.
2 in. lens	with $f'$ 3 inches	continuous line = $\frac{3}{5}$ in.
3 in. lens		dash line = $\frac{3}{4}$ in.
4 in. lens		by formula = $\frac{6}{7}$ in.
6 in. lens		by formula = 1 in.

DIAGRAM 7.



Anterior Confusion Disk.

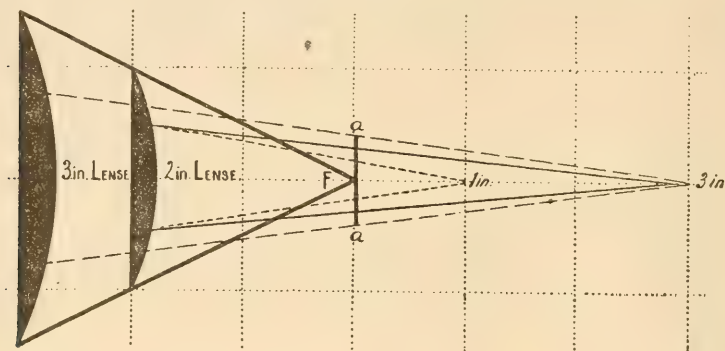
\* Not shown on diagram for want of space.

\* Not shown on diagram for want of space.

glass be situated three inches from lens (centre). For a like reduction with a three inch lens " $f$ " would be one and a half inches, and ground glass be located four and a half inches from lens; with a four

twice that of a three inch lens, and three times that of a two inch lens. It is evident that, as demonstrated, the anterior confusion disk by no means increases in the proportion of the square of the lens, nor yet again

DIAGRAM 8.

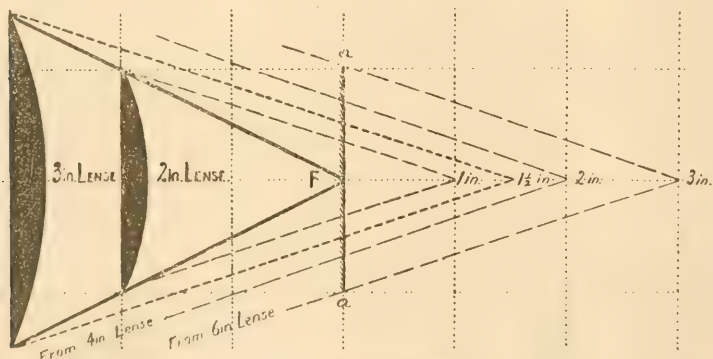


Anterior Confusion Disk.

inch lens and reduction the same " $f$ " would be two inches and ground glass would be distant six inches from lens; and with a six inch lens " $f$ " three inches and ground glass be removed to nine inches from lens. With such proportionate in-

even in ratio therewith, but becomes *de facto* less proportionately as size of lens increases. And again, that as the image of an object is necessarily formed by rays *converging* to a focus, therefore however great or distant " $f$ " may be, the anterior confusion disk can never

DIAGRAM 9.



Anterior Confusion Disk.

crease of " $f$ " the anterior confusion disk is seen as proven by formula.

Increasing and decreasing in exact ratio with lens, it being with a

2 inch lens and $f'$	1 inch	$= \frac{2}{3}$ inch,
3 inch lens and $f'$	$1\frac{1}{2}$ inches	1 inch,
4 inch lens and $f'$	2 inches	$1\frac{1}{2}$ inches
6 inch lens and $f'$	3 inches	2 inches,

equal the diameter or aperture of lens; for this could only take place with parallel rays from which no image is resultant.

We have next in order, in our consideration of the confusion disk, the

#### EQUALITY DISTANCE OF LENSES

or distance beyond which, with any lens, all objects are in equal focus. This varies

not only with lens, decreasing as the focus shortens, but also with change of aperture.

With an eight inch lens and  $f' \frac{8}{100}$  of an inch the distance of object would equal 808 inches for

$$-\bigcirc> = \frac{F^2}{f'} + F.$$

On full opening the posterior confusion disk equals  $f'$ , and is therefore in magnitude

$$\frac{8''}{100}$$

On reduction of aperture the posterior confusion disk equals  $\frac{A \times f'}{F}$  and consequently for

$$\begin{array}{lll} \frac{F}{2} & \text{it would equal} & \frac{4''}{100} \\ \frac{F}{4} & \text{" " " "} & \frac{2''}{100} \\ \frac{F}{8} & \text{" " " only} & \frac{1''}{100} \end{array}$$

The knowledge of this distance in the use of the so-called detective or portable camera of the present day is so important and convenient that I append a small table as published in the *British Journal Almanac* for 1887.

Table showing the number of feet beyond which everything is in focus, when " $f$ ", the equivalent focus of lens, is used, the disk of confusion being less than the  $\frac{1}{100}$  of an inch.

Equivalent focus equals.	Stop									
	$f$	$f$	$f$	$f$	$f$	$f$	$f$	$f$	$f$	$f$
	5	10	15	20	25	30	40	50	60	
2 inches.	7	3½	2½	2	1½	1¼	1	¾	¾	
2½ "	10½	5½	3½	3	2½	2	1½	1¼	1	
3 "	15	8	5	4	3½	3	2	1½	1¼	
4 "	27	14	9	7	5½	5	3½	3	2½	
5 "	46	21	14	11	9	7½	6	4½	4	
6 "	60	30	20	15½	12½	10½	8	6½	5½	
7 "	82	42	27	21	17	14	10¾	9	7½	
8 "	107	54	36	27	22	19	14	11	10	
9 "	137	68	45	34	28	23	18	14	12	
10 "	167	84	56	42	34	30	21	18	15	
11 "	202	101	67	51	41	37	26	21	18	
12 "	241	121	80	61	49	41	31	25	21	
13 "	283	142	94	71	57	48	37	30	25	
14 "	328	164	109	83	66	56	42	34	29	
15 "	376	189	125	95	76	64	48	39	33	

We have then on reduction of aperture to  $\frac{F}{8}$  a posterior confusion disk of only  $\frac{1''}{100}$

(in place of  $\frac{8''}{100}$  as present on full opening)

for objects in the far distance whose focus would be at  $F$ , an amount of blurring considered insufficient to detract from general effect, whence the following

### Formula.

$$\left. \begin{array}{l} \text{The equality distance or} \\ \text{distance beyond which} \\ \text{all objects are in suffi-} \\ \text{cient focus with any} \\ \text{lens of whatever focus} \\ \text{or aperture.} \end{array} \right\} = \frac{A \times F}{\frac{1}{100}} + F \quad \text{or its equivalent} \quad (A \times F \times 100) + F$$

Dependent in every way upon the confusion disk, but at the same time entirely antithetical thereto, is that quality of such great value in lenses termed

### DEPTH OF FOCUS,

in the analysis of which we find two forms or varieties are present, viz., a *distal*, and an *anterior or proximal depth of focus*. And first, to determine "the depth of focus of a lens for an object *behind or beyond* the object focussed on," or to use a more ready and convenient phraseology, the *distal depth of focus*. From previous demonstration it is evident that the difference between the  $f'$  of object focussed on and that of the more distant object must be such as to give only a posterior confusion disk of the more distant object of only  $\frac{1''}{100}$ . On full opening we

found in last example " $f$ " =  $\frac{8''}{100}$  and the posterior confusion disk to be of equal size. Increasing and decreasing pro rata with each other, the new " $f$ " which we will designate as " $f''$ " would be  $\frac{1''}{100}$  less i. e.,

$\frac{7''}{100}$ . With  $\frac{F}{2}$  we have the posterior confusion disk of only half the size of " $f$ ", and therefore " $f''$ " would be  $\frac{2''}{100}$  less or  $\frac{6''}{100}$ .

With  $\frac{F}{4}$  we likewise see that the posterior confusion disk is one quarter the size of " $f$ ", and consequently " $f''$ "  $\frac{4''}{100}$  less, or only  $\frac{4''}{100}$ . From which the

## Formula.

Distal depth of focus in any lens of whatever focus for any aperture or distance of object equals,—having first obtained the value of “ $f$ ” for such distance\*]

$$= "f" - \left( \frac{1}{100} \times \frac{F^2}{"u"} \right) + F$$

less the given distance.

In the case given of an 8 inch lens and distance of object focussed on 808 inches, “ $f$ ” as we have seen would =  $\frac{8''}{100}$ , and with  $\frac{F}{2}$  the distance of further object would be 1074 inches, and the distal depth of focus (1074—808) 266 inches.†

With  $\frac{F}{4}$  the distance of further object would be 1608 inches, and the distal depth of focus (1608—808) 800 inches. Here evidently the distal depth of focus increases with or on reduction of aperture nearly as the square, being almost four times instead of twice as great.

Take, however, the same lens with like difference of aperture for one-half the distance, viz., 404 inches. “ $f$ ” now equals  $\frac{16''}{99}$ . The required distance for  $\frac{F}{2}$  will now be found to be 460 inches, and distal depth of focus (460—404) 56 inches; and for  $\frac{F}{4}$  534 inches, and distal depth of focus (534—404) 130 inches. The increase in this case is only very slightly over twice, demonstrating beyond question that no rule as to the ratio of

$$f' = \frac{-\ominus \rightarrow \times F}{-\ominus \rightarrow - F} - F.$$

Proceeding is as follows: Obtain value of denominator (which will be fractional) and reverse its terms. Then multiply the numerator by  $F^2$  and divide the product by the denominator; to the quotient add  $F$ .

$$\left. \begin{array}{l} F^2 = 64 \\ f' = \frac{8''}{100} \\ "u" = 2 \end{array} \right\} \frac{8}{100} \left( \frac{1}{100} \times \frac{64}{2} \right) = \frac{6}{100}$$

Reverse denominator and we have

$$\frac{100}{6} \div \frac{64}{6} = 106.6 + 8 (F) = 1074 \text{ inches.}$$

$$1074 - 808 = 266 \text{ inches.}$$

the depth of focus in a lens to its aperture can be given except with the distance of object taken as a factor.

For the determination, secondly, of the proximal depth of focus—i. e., the distance of a still nearer object than that focussed on such nearer object to have only an anterior confusion disk of  $\frac{1''}{100}$ , the proceeding is dif-

ferent. Let it be remembered that the ground glass in this case is not at “ $F$ ” the focus of the lens for the far distance, but at “ $f$ ” the focus of a nearer object. The mistake must be guarded against therefore of using the anterior confusion disk =  $\frac{A \times f'}{f}$ , for this equa-

tion applies to the anterior confusion disk, of, indeed, a nearer object whose focus is at “ $f$ ”, the ground glass of camera however being at  $F$ . Here the anterior disk to be determined is that of a still nearer object than the one focussed on with the ground glass at  $f$ , the focus of whose image would be yet more distant from lens. By diagram 10 it is seen that the triangles produced by the anterior confusion disk with varying distances from “ $F$ ” for their focal point or apex, e. g., 2, 6, and 9 (i. e., for different distances of object) are not, as in the case of the posterior confusion disk, similar, and therefore cannot be compared.\*

With ground glass at  $p$ , the anterior confusion disk of a still nearer object whose focus would be at 9 is required. Such anterior confusion disk is represented in diagram by  $a' a'$ . Now the triangles  $O 9 O$  and  $a' 9 a'$  are similar, and  $O O : F + 9 :: a' a' : (F + 9) - (F + f')$ . Let the second term be known as  $f^a$ . In the last term,  $(F + f')$  equals  $f$ , and the proportion becomes,

$$O O : f^a :: a' a' : f^a - f,$$

and

$$a' a' = \frac{f^a - f}{f^a} \times O O = \frac{(15 - 10) \times 6}{15} = 2 \text{ inches, as seen.}$$

\*  $O 2 O$ ,  $O 4 O$ ,  $O 6 O$ , and  $O 9 O$ , all differ in size of angle at 2, 4, 6, and 9, and are consequently dissimilar, whereas in Diagram 2, q. v., all the triangles having to do with the posterior confusion disk at whatever distance such disk may be, whether at 1, 2, 3, or 4 inches, have like angles with each other, and again with  $O F O$  are hence similar with like ratios.

$f^a$  is here known; when unknown it must for solution be previously found, and the equation from the given proportion therefore

$$\text{would be } f^a = \frac{(f^a - f) \times OO}{a' a'}$$

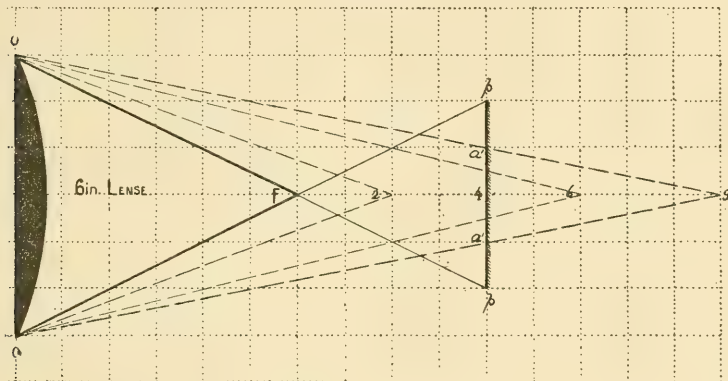
with  $f^a$  the unknown quantity present in both of its members. But by the rules for

Formula.

The proximal depth of focus in any lens of whatever focus for any aperture or distance of object — having first obtained the value of " $f$ " for such distance.\*

$$= \left\{ \begin{array}{l} \text{the given distance less} \\ \frac{F^2}{f^a - F} + F \end{array} \right.$$

DIAGRAM 10



Proximal Depth of Focus.

Algebraic formula we can change the proportion to

$$f^a : f^a - f :: OO : a' a'$$

and then at once determine the value of  $f^a$  by

$$f^a = \frac{f \times OO}{OO - a' a'}$$

and substituting  $A$  (aperture) for  $O$  (opening) gives us

$$f^a = \frac{f \times A}{A - a' a'}$$

Formula.

The distance from camera of a nearer object than the one focussed on, said object to have a given size of anterior confusion disk with any lens of whatever focus or aperture.

$$- \frac{F^2}{f^a - F} + F$$

If now  $a' a'$  in the determination of  $f^a$  is taken as  $\frac{1''}{100}$  such formula gives us the distance of the still nearer object whose image would not be sufficiently out of focus to be prejudicial, and the difference between such distances is termed preferably, the *proximal depth of focus*, or *depth of focus for an object still nearer camera*.

$$f = \frac{\text{---} \bigcirc \text{---}}{\text{---} \bigcirc \text{---}} \times F = \frac{240 \times 9}{231} = \frac{2160}{231}$$

and

$$f^a = \frac{f \times A}{A - a' a'} = \frac{2160 \times 2\frac{3}{4}}{231 - \frac{1}{100}} = \frac{5940}{231 - \frac{1}{100}} = \frac{5940 \times 100}{231 \times 274 - 1}$$

$$= \frac{594000}{63294}$$

$$\text{---} \bigcirc \text{---} = \frac{F^2 (81)}{f^a \left( \frac{594000}{63294} \right) - F (9)} = \frac{24354}{63294}$$

$$= \frac{81 \times 63294}{24354} = 215$$

$$\& 215 + F (9) = 224 \text{ inches}$$

which subtracted from 240 leaves 16 inches for the proximal depth of focus.

The above example is taken as used by

$$* f' = \frac{\text{---} \bigcirc \text{---}}{\text{---} \bigcirc \text{---}} \times \frac{F}{F'}$$

$$\dagger f^a = \frac{f \times A}{A - a' a'}$$

the usual value of  $a' a'$  being  $\frac{1''}{100}$ .

e. g., 9 inch lens  $A 2\frac{3}{4}$  inches distance of object 20 feet = 240 inches.

Dallmeyer in his treatise on lenses, and also by Carey Lea in his text-book, each one, however, giving a different depth of focus. Dallmeyer gives the entire depth of focus as 2 feet 12 inches in front, and 12 inches behind the object. Carey Lea gives the entire depth of focus as 3 feet—18 inches in front, and 18 inches behind object.

The correction by equation makes the proximal depth of focus 16 inches, and as seen by demonstration and diagram the two depths of foci are not equal ever,\* the anterior being in all cases the greater.

In general terms, the farther the object which is focussed on is from the lens the greater the depth of focus. This is seen at a glance by inspection of examples.

2d. The less the aperture the greater the depth.

3d. The corollary—that lenses of long focus have much less depth than those of short focus, and consequently small pictures are always superior to larger ones in sharpness and definition.

4th. That as the depth of focus in a lens is dependent entirely upon its aperture and distance of object, no lens of like focus and aperture can exceed another in this respect, be the maker who it may. In other belongings, *e. g.*, rapidity, definition, flatness of field, etc. (*not forgetting price*), lenses do indeed vary as made by various parties, but no lens of one manufacturer possesses or can possess over a like one of another manufacturer any wonderful depth of focus.

#### SUMMARY OF THE MORE IMPORTANT FORMULÆ.

##### *Symbols.*

$F$  = equivalent focus of lens, or distance of ground glass from lens centre, for *parallel rays or objects in the far distance*.

$f$  = focus of image or distance of ground glass from lens centre, for *other than parallel rays*.

$f'$  = their difference  $f - F$ .

$A$  = size of aperture in diaphragm or stop.

" $n$ " = value of the denominator in the expression  $\frac{F}{n}$ , or in other words, the quotient resulting from dividing the focus of lens by the lineal diameter of stop.

\* The distance from  $f^a$  to  $f$  being always greater than from  $f$  to  $f''$ .

$f^a$  used in the equation for *proximal depth of focus* q. v.

$\rightarrow$  = distance of image or ground glass from lens centre.

$\bigcirc \rightarrow$  = distance of object from lens centre.

Size of Posterior Confusion Disk in all lenses of whatever focus or aperture.  $\left\{ = \frac{A \times f'}{f} \text{ or } \frac{f'}{n} \right.$

Distance of ground glass from  $F$  (equals  $f - F = f'$ ) to have the Posterior Confusion Disk of any given magnitude.  $\left\{ = \frac{\text{the required disk} \times n}{f'}$

Distance of ground glass from Centre of Lens to have the Posterior Confusion Disk of any given magnitude.  $\left\{ = \frac{\text{(the required disk} \times n) + F}{f'}$

Size of Anterior Confusion Disk in all lenses of whatever focus or aperture.  $\left\{ = \frac{A \times f}{f'}$

The Equality Distance of a Lens or distance at and beyond which all objects are practically in equal focus.  $\left\{ = \frac{A \times F}{100} \mid F \right.$   
or its equivalent.  $(A \times F \times 100) \mid F$

The Distance of Image—or ground glass—from Centre of Lens ( $f$ ) for a given distance of object.  $\left\{ \begin{array}{l} \bigcirc \rightarrow \\ \rightarrow \\ \text{or} \\ \bigcirc \rightarrow \end{array} \right. \begin{array}{l} F \\ F' \\ F' \end{array}$

The Distance of Object from Centre of Lens for a given distance of image from said centre.  $\left\{ \begin{array}{l} F^2 \\ f - F \mid F \\ \text{or} \\ \rightarrow \mid F' \\ \text{or again} \\ F \times f \\ f' \end{array} \right.$

The Distal Depth of Focus in any lens of whatever focus, for any Aperture or distance of object.\*

$$= f' - \left( \frac{100}{f'} \times \frac{1}{a'} \right) + F'$$

less the given distance.

The Proximal Depth of Focus in any lens of whatever focus for any Aperture or distance of object.†

$$= \frac{\text{the given distance less } f'^2}{f' - F'} = F'$$

## PRACTICAL ESSAYS ON ART. BY JOHN BURNET.

THE re-publication of these essays, which is due to the enterprise of Mr. Edward L. Wilson, the well-known photographic publisher, has been unsuccessfully undertaken several times before, and twice by Mr. Wilson himself, as he relates in his preface. John Burnet, painter, engraver, and author, born near Edinburgh in 1784, and who died in 1868, first attracted the public attention by his excellent engravings after Wilkie's pictures, and in addition to the *Practical Essays*, published a *History of Rembrandt and his Works*, and, in connection with Peter Cunningham, the *Life and Works of J. M. Turner*. The present work is divided into three parts—"Practical Hints on Composition in Painting," published in 1822; "Practical Hints on Light and Shade in Painting," published in 1826; both of these being illustrated by examples from the Italian, Flemish, and Dutch schools, and "An Essay on the Education of the Eye," with reference to painting, illustrated by copper-plates and wood-cuts, published in 1837. Mr. Wilson has reproduced these works, text and illustrations, by the process of the Photogravure Co., of New York. The essays on "Composition" and "Light and Shade," include informal dissertations on angular and circular composition, and the proper management of the five shades—"light, half-light, middle-tint, half-dark,

and dark"—illustrated by a running commentary on the practices of the old masters and fortified by copious quotations, mostly from Sir Joshua Reynolds, "whose works, if properly understood, render all other writings on the subject of painting superfluous." These practical hints, necessarily vague, are yet of sufficient variety and importance to render them of value to the student and the amateur, and the author's occasional discussions, as in his paragraph on the subject of morality in art, are marked by judgment and lack of prejudice. "The moral must never injure the picture in its higher requisites. In the early ages, representations of vice were necessary as strong lessons of morality; but as mankind grew more enlightened, they were referred to books, not pictures, for improvement. Besides, an artist ought always to recollect that he paints for the higher, not for the lower classes of men; and as his business is to convey pleasure, not pain, a little intercourse with society will convince him that men in all ranks have often enough to vex them, or to produce a variance with their fellow-creatures, without hanging up on their walls representations tending to increase either the one or the other feeling. The absence of these considerations in an artist (of which we see daily proofs) dooms his work to that neglect which he ascribes to the want of encouragement to the arts generally."

In his preface to the "Education of the Eye," which is intended more for the general public, the author apologizes for undertaking to convey any information which can be put to a practical use in so small a compass, his wish being to give the reader, if possible, an insight "into the intricacies of the Art." "Though the varieties of painting are endless, yet the properties of which these varieties are composed are, as in music, few in number. I have endeavored, therefore, to notice only the leading principles which must be known, and which by reflection and observation can be extended to an infinite series of ramifications." To lay a foundation for the appreciation of these principles, he begins with a brief but clear enunciation of the first rules of measurement, form, perspective, lineal and aerial,

\*  $f'$  for any distance of object

$$= \frac{f' \times F'}{f' - F'}$$

$$\dagger f^a = \frac{f \times A}{A - a'a'}$$

the usual value given to  $a'a'$  being the  $\frac{1}{100}$ .

and chiaro-oscuro. These disposed of, he endeavors to explain the qualities by means of which the great painters have excelled in their invention, composition, arrangement, harmony, form, chiaro-oscuro and harmony of color, ending with a few suggestions as to the proper method of studying from nature, that is to say, with the exercise of proper selection and arrangement, with a certain breadth of vision, and with the greatest accuracy when necessary. Throughout the book he predicts the necessity of subordinating useless detail to the general effect—a virtue in which the English school is not particularly eminent; and he does not cease to recommend the student to supplement his studies with ‘the incessant contemplation of nature.’ Indeed, a consciousness of the inefficiency of mere book learning haunts him throughout his wisest expounding, and his own quotation from Bacon serves to mark the limitations of such works as this, be they ever so careful: ‘To spend too much time in studies, is sloth; to use them too much for ornament, is affectation; to make judgment wholly by their rules, is the humor of a scholar. They perfect nature, and are perfected by experience; for natural abilities are like natural plants, that need pruning by study, and studies themselves do give forth directions too much at large, except they be bounded in by experience.’”—*Art Interchange*.

[Translated for the Philadelphia Photographer.]

## HYDROQUINONE DEVELOPMENT.

BY L. MATHET.

THE proportions of carbonate and of sulphite of soda given by Mr. Balagny have not yielded me as good results as the formula in which these two substances are used at half the strength. I now employ:

Solution of carbonate of soda at 10 per cent., 60 c. c. (2 fl. ozs.); solution of sulphite of soda at 10 per cent., 30 c. c. (1 fl. oz.); to which mixture I add 5 c. c. (1 fl. dr.) of an alcoholic solution of salicylic acid at  $\frac{1}{10}$ th, then 0.80 gram. (12 grs.) of hydroquinone; finally, I have another bath of the same composition, except that it contains but half the quantity of hydroquinone. It is in this weak bath that I place the plates

about which I may have any doubt in regard to the time of exposure. According to the nature of the development, I allow it to end in this weak bath or else I complete it in the more concentrated bath should it be too long or incomplete. In operating in this manner, and for exposures of the same subject varying from simple to quadruple, I have always obtained satisfactory clichés, showing no difference between them. For instantaneous prints I always make use of a concentrated bath, new if possible, or having been used but once or twice at the most. I will finish by saying, that the addition of salicylic acid imparts to the bath a perfume of pine apples and rum, an odor which is not disagreeable.—*L'Amateur Photographie*.

## PRACTICAL PHOTOGRAPHY FULLY EXPLAINED.

BY DR. J. H. JANEWAY, U. S. A.

(Continued from page 304.)

### PART III.

*Making Prints from Negatives.*—Several new printing processes have of late years been introduced, a condensed summary of which will be made later on, but at present we will confine ourselves to the simplest and those most generally employed. Up to the present time we have had to exercise a great deal of faith; now the results of that faith will be made manifest. The outfit for this process will consist of a printing frame, a porcelain and a vulcanite tray, some chloride of gold, tungstate, acetate, or bicarbonate of soda, a graduate measure, hyposulphite of soda, and ferro prussiate or ready sensitive paper, a glass form, sharp shoemaker's knife or a Robinson trimmer, some sheets of fine card-board, paste, and a flat bristle brush.

See that the back or glass side of your negative is carefully cleaned; any marks on it will be transferred to your print and mar it more or less. Place your negative film side up in your printing-frame. It is a good plan always to make a blue print, as they are called (a blue picture on a white ground) in order to see whether your negative requires any more treatment before you proceed to the silver print, and to form some

idea of its printing power. Upon the film side of your negative lay a piece of ferro-prussiate paper; this should be handled in a dim light with the colored side down. Upon this lay one or two thicknesses of felt cloth which is much better than newspaper or blotting-paper. Close the back of the printing-frame down and secure it by setting the springs. Place the frame in sunlight and from time to time examine the print in a dimmer and more diffused light. When the picture is clearly seen on the paper take it from the frame and submerge it in a pan of clear water. In fifteen or twenty minutes remove the print and dry it in sunlight. The result is a permanent blue and white picture. A little experience will tell you whether the negative is a quick printer and whether you have printed too long or too short.

*Silver Sensitized Paper* (often called albumenized paper).—For this purpose a paper of fine texture is chosen and coated with albumen or white of egg in large quantities; but until it is made sensitive to the light no picture can be procured. It is best to obtain it for the present already sensitized, either in sheets of about 17 x 22 inches and then cut it up into sizes that you require; or you can purchase it in packages already cut up in such sizes as you may want. Keep the paper face to face in a tight box between sheets of blotting paper that have been immersed in a saturated solution of bicarbonate of soda and thoroughly dried, and under a weighted board to keep flat. In this way ready sensitized paper can be kept for months. Before proceeding to printing this paper should be fumed (*i. e.*, exposed in a dark box to the fumes of aqua ammonia for from fifteen to twenty minutes, care being taken that none of the liquid touches the paper). When fumed, place the glassy side next to the film side of the negative. On the paper lay your felt cloth; to ensure perfect contact between the paper and the negative put the hinged back in its place and fasten it down by pressing the springs into place. Expose to good light; if the negative is quite dense, to direct sunlight. As the paper is not as sensitive to light as the dry plate, you can examine now and then, but it is well to postpone these examinations until

you can see the picture plainly through the negative. In making these examinations only loosen one of the springs and raise one-half of the back; in this way you do not displace the paper; after lifting the paper and examining it let it fall back into its place and reclose the back. Continue your printing until the picture is several shades darker than you desire it to be when finished, as the after-manipulation will reduce it to a certain extent. Time and careful observation will enable you to obtain the necessary tone.

When the print is dark enough remove it from the printing-frame in a weak light, and if you want further prints, you can store this one between the leaves of a blank book and proceed as before, with a fresh piece of sensitive paper. When your batch of prints is made up, I would advise that you trim them to the size you desire before proceeding further. They are not so apt to tear if trimmed before toning, and you do not use up so much gold in your toning bath. It is also easier to trim them before than after toning.

*Washing*.—The prints being ready, they are now transferred to a large porcelain or agate wash-tray (which is filled with clean water) one by one, with their faces down. They will oftentimes show a provoking tendency to curl up on touching the water, but when saturated with the water this will cease. Unless you cover each print with water at once, stains will appear. Soon after the prints are all in the water, it will be seen to become turbid or milky; this is caused by the silver that has not been acted upon by the light, leaving the paper and becoming dissolved. The prints should be kept in the water for about twenty minutes, when it should be poured off and fresh water applied, to which a solution of bicarbonate of soda may be added, to neutralize the acid that has been used to keep the paper. Gently rock the tray from time to time, and at the end of another twenty minutes the prints will be ready for their third but a much shorter bath. Too long and continued washing, I think, injures more than helps the resulting tone.

*Toning*.—The rationale of this process is the substitution of metallic gold for the

silver that has been acted on by the light. The gold giving up its chlorine and the silver grasping it greedily, the gold is precipitated in the place of the silver, and we have a permanent and a much more agreeable color produced. Of the many formulas for toning baths I prefer the following for the uniform results that it gives, and its keeping powers:

Solution of Chloride of Gold . . . 1 oz.

(1 grain to 1 ounce of water.)

Tungstate of Soda . . . 160 grs.

Boiling Water . . . 8 ozs.

Dissolve the tungstate of soda in the boiling water, and filter, and when nearly cold add the gold. I prefer the liquid chloride of gold, or a stock solution; its mode of making will be given hereafter. With the liquid chloride, each grain of gold is sufficient to tone one sheet of paper 17 x 22, or eight sheets of 5 x 8. *To tone*, take your prints out of the third bath one by one, and place them, face downward, in the toning bath, which should always be held in a porcelain tray, and with your fingers running from end to end of the print press them down in order to drive off any air bubbles that might be caught underneath. Six to eight are enough to be immersed at one time. Gently rock the tray after the last one is put in, and then commencing with the bottom print, turn it over on top, and continue until all are reversed; this is to ensure uniformity in toning. Repeat this process several times, and constantly rock the tray. In a few minutes it will be seen that the color of the prints is changing from a red foxy to the desired purple or chocolate tone. Some of the prints will have reached this stage in from ten to fifteen minutes, and then they should be removed to a tray of clean or running water, and there wait until the rest are finished. Prints from dense or slow printing negatives require a longer time to tone than those from quick printing or overexposed negatives. When toning avoid touching the fixing solution. If you do touch it, rest assured that stained prints will almost certainly be produced. The prints having been toned, rinse them off in running water, and they are then ready for the fixing bath. The strength of

this bath seems to depend more upon the pleasure of the operator than upon any fixed rules. Some prefer a strong bath, others a weak one, both sides claiming advantages for their own particular ways. I think that a bath composed of

Hyposulphite of Soda . . . 4 ozs.

Table Salt . . . 1 oz.

Carbonate of Soda . . .  $\frac{1}{2}$  oz.

Water . . . 42 ozs.

mixed and filtered, will meet all the requirements for the proper fixing of the prints, and give as good if not better results than any other bath. The prints are to be placed in this bath singly, face downward, using the right hand to lift them from the water, and the left hand to submerge them in the hypo; in this way stains are avoided. About fifteen minutes should elapse after putting in the last print to sufficiently fix the first, and you can begin to take them out of the bath, beginning at the bottom print, and so on to the top one. Place the prints in a deep tray, or, better still, in a small wooden tub, such as is used for washing glass and silverware, and turn on the water upon them. The perforated top of the spout of a watering-pot is an admirable thing, when attached to the faucet of a water pipe or keg, to keep the prints moving about and facilitates the discharge of the hypo from the prints. They should be kept in cold water at least four hours, to eliminate the hypo. Traces of it in badly worked prints are revealed in the dry prints by ugly yellow stains. After having washed the prints, they can be hung up to dry, or dried between sheets of blotting-paper. To avoid their rolling and twisting into all manner of shapes, I transfer them, one by one, from the water to a solution of

Water . . . 1 part.

Alcohol . . . 4 parts.

Glycerine . . . 3 parts.

and draw them over the edge of the tray to prevent too much of the mixture adhering, and then place them between sheets of blotting-paper to dry; when dry, they are perfectly flat, and are quite glossy. If they are pressed down or squeezed upon a piece of smooth marble or tintype plate, when dry, they will present a very smooth sur-

face. In winter the toning and fixing baths should be gently warmed before using, about 75° Fahr.

The prints are now ready for mounting, provided you have trimmed them before toning; if not, you will now have to do it.

*Trimming the prints.*—Place the print face up on a glass plate, or a sheet of zinc, and upon the print lay the glass form, taking care, if it is rectangular, that it is so to the print; press down firmly with your left hand, to keep the form in position, and with the right hand run the blade of the knife round the edges of the form; if carefully done, the rough edges will be sharply cut away. A shoemaker's knife, kept well sharpened, is the best for this work, and costs but a trifle.

*Mounting.*—For this purpose, starch, arrow-root, gum, and other adhesive materials, have been recommended. The following paste, easily made, has been a favorite of mine, especially for its anti-cockling properties and adhesiveness:

Water . . .	7 ounces, 4 drachms.
Glycerine . .	6 drachms, 40 minims.
Starch . . .	6 drachms, 40 grains.

Dissolve the starch in two-thirds of the water (cold), and to the other third add the glycerine; place the dissolved starch over a spirit lamp, or on a stove, and just before the boiling point add the glycerine and water. Stir constantly, and when, after boiling, it begins to show a trace of change of color from white to blue, remove from the fire or spirit lamp and pour it into your jar; cover, and let it cool. Apply this paste to the back of the print by a broad, flat bristle brush, going over it till it is all evenly distributed, then lay the print on the card-board, place over it a sheet of blotting-paper, and with the side of the hand rub the print down from the centre outward, turning the print round from time to time, so that each side gets the pressure of the hand; or you can use a cloth, pressing with the hand, as above, and then apply considerable pressure by means of a rubber tube stretched over a round stick of wood. After mounting it is very necessary, I think, to take the card by its two ends and bend it with the print on the convex side into nearly one-half of a circle, then lay it aside to dry. When dry it will be perfectly flat.

We have thus followed the path, led on by faith, to the completion of the picture. A transcript of nature. And it now depends upon yourself whether your results are to be successful or not. If you are observant, studious, and careful, the future will be a bright one in your photographic field. If careless and inattentive, you will soon tire of the pursuit, and either fall out of the ranks, or be a confirmed grumbler. Let me impress upon you the necessity of reading the best that can be obtained in the way of books on the subject. In Wilson's *Photographics*, and his later and most complete book, *The Quarter Century*, you have a library not to be excelled in the English language. And you will bear me witness, hereafter, that every time you take up either of those books to read or consult, you will find something new or something that has escaped your attention before. The art science is making such giant strides nowadays, that, unless you take some one or more of the photographic journals, you will be left away behind before you suspect it. Observe, think, study. Prove all things, and hold fast to that which is good.

(To be continued.)

[Translated for the Philadelphia Photographer.]

## A LANTERN FOR THE DARK ROOM.

BY M. BOELDE.

I MAKE use of a wooden lantern made by myself, 16 inches in height by 17½ inches in diameter. The original was an octagon, from which I removed three sides, leaving five sides for the lighting. The coal oil lamp is placed at 8 inches from the screens, which consist of three thicknesses of yellow paper between two plates of glass. The lamp has a double bottom and a double top furnished with large holes which allow enough to penetrate, but which admit no light. I have also over the lamp a revolving chimney, and the ventilation is as perfect as it can possibly be. This lantern is placed at about two yards from my developing table, and at about the same distance above the floor. My operating room is full of light; so much so that I can read a newspaper, and naturally I can easily find any bottle I may require. I have made use of

plates having great sensitiveness, which, wanting in exposure had received a prolonged development, and I never discovered the least trace of fog. For a long time I had been accustomed to expose my plates as little as possible to light, and when I fill my frames I do so as far as I can from my lantern, of which I moderate the flame, and at the same time I hide the plate as much as possible. When I develop I also diminish the light, and as soon as the developer has slightly acted on the film I raise the wick; these precautions are only necessary when making use of plates that are extremely sensitive. It is well known that a plate that has been slightly wet is not as sensitive as when it is dry. The principle of my lighting is based on the fact that the power of light diminishes inversely according to the square of the distance of its source. The wick of my lamp being at a distance of eight inches from my screens (which are rather transparent), represents the figures  $8 \times 8 = 64$ . The distance of the nearest screen to the developing table is six feet, which, multiplied by  $12 = 72 \times 72 = 5184$ . Compare the lighting where we have a screen at the distance of four inches from the wick of the lamp. This would give us  $4 \times 4 = 16$ , and that the distance of the screen from the developing table be thirty inches, this would give us  $30 \times 30 = 900$ . The difference between this last result and 5184 is enormous.

It is evident that if a light represented by 900 is considered to be without action, it is still less so at a distance where it is represented by 5184. The combinations of red and yellow light generally used may be called good, but when we take into consideration the great comfort and facilities offered by the manner mentioned above, I am certain that the preference will be accorded to it after a single trial. The yellow paper should be of the color of the sun flower; there should be three sheets placed one over the other between two glass plates and without being stuck together in any way. As the color is liable to fade, they should be changed about every eight or ten months. When using very sensitive plates, a sheet of yellow paper may be added to the other three.—*Revue Photographique.*

[Translated for the Philadelphia Photographer.]

## PYROGALLIC ACID AND AMMONIA DEVELOPMENT.

BY G. SEGUIN.

IN the last number of the *L'Amateur Photograph* there was published a formula of a pyrogallic acid developer, to which I make the following objection: Should the pyrogallic acid be not entirely dissolved when the ammonia is added, the plate will become spotted everywhere a particle of pyrogallic acid has been deposited. I have a formula now in use which enables me to develop, with all the desired details, instantaneous pictures made with the greatest rapidity, using the Londe and Dessoudaix stop. Here is the formula:

### SOLUTION A.

Pyrogallic Acid	10 grms. (154 grains.
Alcohol at 80°	50 " (1 oz. Troy, 5 drs.)
Distilled Water.	50 " (1 " " )

### SOLUTION B.

Ammonia	50 grms. (1 oz. Troy, 5 drs.)
Bro. of Potassium	5 " (77 grains.)
Citric Acid	2 " (31 " )
Distilled Water	10 " (154 " )

To develop a cliché 13 x 18 c. ( $4\frac{1}{2} \times 6\frac{1}{2}$  in.) take

Solution A	30 cc. (1 fl. oz.)
Solution B	5 drops.

and add distilled or rain water 80 cc. (2 fl. oz.  $5\frac{1}{2}$  drs.). According as the exposure has been more or less rapid, increase or diminish the quantity of the solution B.—*L'Amateur Photograph.*

[Translated for the Philadelphia Photographer.]

## ORTHOCHROMATIC PLATES.

BY L. MATHET.

IN continuing my experiments on the preparation of ischromatic plates by means of colored baths, I was led to make some new observations, completing those which I have already given; they will prevent failures on the part of amateurs using the same baths as I do.

First, the bath, composed after the following formula:

Distilled Water . . .	100 cc. (3 fl. oz. 3 drs.)
Solution of Erythrosine @ 1-1000 . . .	20 cc. (5½ fl. drchms.)
Solut'n of Nitrate of Silver @ 1-1000 . . .	20 cc. (5½ fl. drs.)

Soon gives rise to a deposit formed by the combination of the erythrosine and the silver. This precipitate is more rapidly formed if we mix, in the first place, the solutions, then adding water, than if, diluting the solution of azotate of silver with the 100 cc. (3 fl. oz. 3 drs.) of distilled water, we add, finally, the solution of erythrosine. In whatever manner we may prepare the bath (with erythrosines that I have tried), we always find this precipitate, and as it rather rapidly increases, it follows that the first plates placed in the bath are clean; but after four or five, the precipitate incorporating itself with the surface of the gelatine, we obtain clichés covered with spots, and these spots are larger in proportion as the bath was less fresh when the plates were immersed in it. I attempted to prevent this trouble by first placing the plates in the following bath:

Distilled Water . . .	100 cc. (3 fl. oz. 3 drs.)
Nit. of Silver @ 1-1000 . . .	20 cc. (5½ fl. drs.)

Then, after draining, plunging them in the erythrosine bath:

Distilled Water . . .	100 cc. (3 fl. oz. 3 drs.)
Erythrosine @ 1-1000 . . .	20 cc. (5½ fl. drs.)

The time of remaining in each bath is one minute. In operating in this manner I avoided spots, and the results that I have obtained, from an isochromatic point of view, are similar to those given by the first bath in which erythrosine and silver are mixed. Finally, I have been able to prevent spots, that is to say, to make a single bath sufficiently stable to enable me to prepare at least twelve plates in the same bath (and even more), by using the following formula: First mix

Distilled Water . . .	100 cc. (3 fl. oz. 3 drs.)
Nit. of Silver @ 1-1000 . . .	25 cc. (7 fl. drs.)

add afterwards

Solution of Caseine (Caseine at 1-1000, Ammonia 4) . . .	15 cc. (4 fl. drs.)
Solut'n Erythrosine @ 1-1000 . . .	15 cc. (4 fl. drs.)

The eosine used is eosine with iodine. Immerse the plate for one minute, then allow to dry.—*L'Amateur Photographer*.

### THE OPEN CORNER.

DEAR SIR: I have received the PHILADELPHIA PHOTOGRAPHER, and find it splendid. Many thanks for *Mosaics*, it is full of practical information. Reading your issue of February 4th, I noticed on page 74 a formula for hydroquinone developer, and it seems that the printer has made a mistake, for he gives 7 grammes of hydroquinone to 30 c.c. of water; it should be 1 gramme, as this is about all it will dissolve.

If possible, please let me know why it happens that if I put the plates after developing in a saturated solution of alum, they frill in the hypo; if I do not put them in alum they do not frill. This happens to me with all brands except "Stanley."

The frilling is not merely on the edges, but all over, like wavy blisters. As I am a travelling photographer (not Cheap John, I get \$3.00 a dozen for cabinets, \$2.00 extra for enamelling), to avoid bulk I use acetate of lead instead of javelle water. Is this as good or not? both for negatives and prints?

LOUIS REINHARDT.

Calle Real 241, Sagua la Grande, Cuba.

IN a paper read before the Boston Scientific Society by J. A. Monahan, who discussed "Goethe's Theory of Colors," the essayist is reported as maintaining that the theory aforesaid was not tenable. "Goethe's prime error consisted in regarding darkness as an entity and light another. But science holds that darkness is merely a negation, the actual or veritable thing being light, and darkness being but a term by which the absence of light is signified. The essayist intimated that red is as certainly a primary color as any, and is doubtless the most vital and enduring of any. This is evinced in the fact that electric light fails to penetrate to so great a distance as the headlight of a locomotive. The explanation is, the locomotive light has red rays, and the electric light has none."—*Ledger*.

DEAR SIR: If you will kindly print in the next issue of the *Photographer* the proper

formula for mixing the gelatine to be used in the "Enamelling Process" noted on page 285, of No. 320, we will be more than thankful.—J. D. VAN BUREN, Albany Camera Club. [*Answer*: Soak for one or two hours gelatine 1 ounce, in water 8 ounces, and dissolve by heat. Strain the mixture while hot through clean muslin. See *Quarter Century*, page 471.]

**PYROCATECHINE DEVELOPER.**—M. Benoist, Professor of Physics and Chemistry at the Toulouse Lyceum, sends the following interesting communication to the *Moniteur*.

"The use of hydroquinone as a developer has suggested to me the idea of experimenting, under the same conditions, with pyrocatechine, with which substance it is isomeric. I found it to possess a developing power of the same order, but with some advantages. The clearness and the harmonious tone of the clichés are greater than with hydroquinone; but the important fact is that the developing liquid with the base of pyrocatechine (same composition as for hydroquinone with a little more sulphate of soda), may be kept for a long time exposed to the air without giving rise to coloration, precipitation, or sensible diminution of the developing energy; in stoppered bottles the preservation is indefinite, as is the case with hydroquinone. But this last exposed to the air becomes completely black in less than a day, and loses its developing power. This advantage of pyrocatechine has a certain importance. The actual objection to its use is its rather high price. But as its preparation offers no particular difficulty (by the transformation of phenol, for example), it is certain that its price would fall very low as soon as it could find an important market in photography. On the other hand, certain processes for the preparation of hydroquinone or of pyrocatechine, produce them mixed; this mixture might, therefore, be utilized, the price of which would evidently be less than that of the two isolated substances."

MR. ANDREW PRINGLE has a very sensible article in the *British Journal* of April 6th, on exhibitions and medals. He concludes as follows: "The medal system in the

provinces, as in certain commercial exhibitions in town, has been carried to a height that is positively ludicrous. Very soon the rarity will be the undecorated photographer. Madame Limouzin's little games sink into insignificance compared with the ingenuity of some exhibition managers. It is doing a lot of mischief, no doubt, but it will soon wear itself out, when everybody has a medal, just as when we all get the garter we shall take to suspenders."

**A RAILROAD PHOTOGRAPHER AND THE CATS.**—His functions are various. When engines or carriages of a new pattern are constructed he takes a record of their features. Again, perhaps it is reported to the engineer that a viaduct shows signs of giving way, that a wall has cracked, or an embankment slipped, and in the first instance if the damage is only slight, instead of going himself to see the state of affairs, he sends the photographer to see and record it for him. Or if an accident has happened, there can be no dispute afterward how the engine was lying, or whether such and such a carriage left the metals, once a commission has been issued to take evidence of the sun. A few miles off, however, at Trent, we found a yet more remarkable portion of the company's staff, eight cats, who were borne on the strength of the establishment, and for whom a sufficient allowance of milk and cat's meat was duly provided. And when we say that the cats have under their charge, according to the season of the year, from 100,000 to 300,000 or 400,000 empty corn sacks, it will be admitted that the company cannot have many servants who better earn their wages. The holes in the sacks, which are eaten by the mice which are not eaten by the cats, are darned by twelve women, who are employed by the company. —*Murray's Magazine*.

**THE Photographic World**, published by Percy, Lund & Co., Bradford, England, has the following notice, which shows how American photography stands in England: "*Art Essays*. By John Burnet. (New York: Edward L. Wilson). Mr. Wilson deserves, and certainly will receive, the thanks of the art world for this reproduc-

tion of John Burnet's *Essays*, with *fac-similes* of all the originals plates and illustrations. The essays on 'Composition,' Light, and Shade,' and the 'Education of the Eye,' were originally published in 1822, 1826, and 1837, respectively. The possession of such a work as this will be a source of constant and increasing satisfaction to every student and lover of art. The practical, terse, and homely hints and suggestions of the essays, no less than the wealth of instruction in the plates, can be turned to again and again with pleasure and profit. Apart from its intrinsic merits, the book possesses a special interest to photographers, inasmuch as it is reproduced entirely by photo-lithography.

"As an English stock of Wilson's *Quarter Century in Photography* was rapidly sold out, Messrs. Percy, Lund & Co., the English agents, have ordered and just received a new supply of the *Second Edition*. The *Quarter Century* is a complete mine of information, and its American sale has been enormous. We don't think that any working photographer would regret investing in a copy."

The gentlemen named are exceedingly enterprising, and have arranged for a large business in American specialties. Our personal transactions with them have been exceedingly satisfactory.

### USING SPOILED DRY PLATES.

THE NOVEL TRICK BY WHICH MR. ROCHE  
HAS BEEN PUZZLING THE  
PHOTOGRAPHERS.

FOR some time past the photographers of New York and vicinity, both professionals and amateurs, have been very much puzzled. The amateurs have taken the worryment more deeply to heart, for, while the men who make a business of picture taking have little time to spare or attention to invest in anything that is not productive of financial results, the amateurs are enthusiastic and possessed by a yearning "to know, you know, for the sake of knowing."

It is fully understood, among photographers, at least, that the gelatino-bromide of silver plates now in universal use for the

"dry" process—that employed in "instantaneous" work—are so exceedingly sensitive that their exposure to actinic light, even for a millionth of a second, ruins them. "Actinic" light, it may be explained, is the light which acts upon chemicals, as that of the sun, electric rays, or the flash from the magnesium. A single gleam of it is sufficient to destroy the plate for photographic purposes. But a little while ago a well-known and prominent amateur, getting a new stock of plates at Anthony & Co.'s, chanced to utter to their old scientist, Mr. T. C. Roche, a lament over the ill luck and annoyance he had suffered through some stupid person exposing, and so ruining a lot of his plates. "Negatives can still be made on them," affirmed Mr. Roche. The amateur looked at him in amazement, and, as he subsequently confessed, thought of the line, "Lo! what a noble mind is here o'erthrown." But Mr. Roche persisted that he could make a negative upon one of those "destroyed" plates, and the next day one was brought to him. "Write your name across its face, so that you can be positive of its identity," directed the old man, "and leave it with me until to-morrow morning." The amateur did as he was directed, and when he returned on the succeeding day was astounded to find a clear, fine negative upon that very plate. He knew very well that in any ordinary developer that film would have come out a solid black, and no other magic could have amazed him so much as the production of a picture where every law related to the process prescribed its impossibility. "Perhaps," he thought, "that plate did not happen to be one of the spoiled ones." Then he remembered he had held it up in the sunlight to write his name upon it. That settled it, if it was not ruined before. And there was the name. He could swear to the plate.

When the gentleman told the paralyzing experience to his fellow members in the Amateur Photographic Society no one was capable of believing it without proof, and there was a general rush to Mr. Roche with spoiled plates. They put plates under the glare of an arc light, laid them for hours in the brightest sunlight, and with apparent equal certainty and ease the wise and cunning

ning old man brought out negatives upon them. "How did he do it?" He just chuckled and shook his head in reply. The amateurs carried their puzzle to the professionals, who listened with incredulity, were convinced by the proofs abundantly offered them, and excepting a few whose scientific interest was awakened, dismissed the subject, saying, "Well, old Roche is the only man who can do it, and it isn't worth my while to find out how so long as new plates are so cheap." One said with emphasis, "That's one of the things known only to old Roche and the devil."

Mr. Roche said in a chat a few evenings since: "There is no commercial value in the discovery, but simply something rather ingenious and novel. Now that I have had my little fun out of it with the boys, I have no objection telling you the process, which is as follows:

"I take the plate, which has been ruined for photographic use by exposure to daylight, and immerse it for from three to five minutes in a dish of from eight to ten grains of bichromate of potash—or bichromate of ammonia—to the ounce of water. This does not need to be done in the dark room, but may be done right out under the skylight, since the solutions, while in a moist condition, are not sensitive to light. The plate, upon being removed from the bath, is set on a rack in the dark room to dry. The next morning I put this plate in contact with a negative, in the ordinary printing frame, and expose it to the action of the actinic light, for ten, twelve, or fifteen minutes, according to the density of the negative. Afterward the plate, without the second negative, is reversed in the printing frame, so as to expose the back of it to the actinic light, which thus renders insoluble the portion of the film in contact with the glass. I now take the plate from the frame and thoroughly wash it, to free it from any excess of the bichromate. It is now taken out in the daylight, and after the excess of moisture is blotted off with a sorbent paper, is rolled over with a composition roller, carrying any colored printing ink you choose. Where the light has acted, no matter how delicate the half tones may be, or how fine the lines, the ink will adhere,

while the water, absorbed by the film in its other parts, will repel the ink. From the plate in this condition a couple of hundred impressions may—with skill and care—be produced, the process being something like the old Albert process invented in Munich.

"But the strangest part is yet to come. Up to this stage in the proceedings the bromide of silver, which the film still contains, has not been made use of. When I have printed off as many impressions with ink as I require, I ink the plate up with the stiffest ink I can get, clean the absorbent parts of the film perfectly with a clean sponge and water, and—in the open actinic light—put it into a bath of hyposulphite of soda, the usual fixing solution, to dissolve out all the bromide of silver, which this will do except where the ink is. Where the film is protected by the adhering ink the solution, of course, has no effect. When the plate is thoroughly 'fixed' with the ink still on it, I wash out the hypo-sulphite of soda in the usual manner, and next, with a little turpentine, clean off the ink. This brings me to the original bromide of silver upon which I put any of the usual developers in full actinic light, and the consequence is that so much of the original film on the plate as has been acted upon by the light is made black, and where the film has not been protected by the ink the bromide has been dissolved out, leaving a clear, transparent picture. Of course, a transparency can be used as well as a negative in this process. The curious thing is that the plate is fixed first and developed afterward, a complete reversal of the ordinary process.

"For pure strong line work I have employed another process. In place of inking up and subsequently developing, I wash out the film. Where the light had acted in the printing would be insoluble, and where it had not acted would be soluble, so that I could wash it out with hot water and a sponge, leaving the lines in such relief that a wax impression or an electrotpe could be made from them."—*N. Y. Sun.*

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THE wind and the weather have been among the principal topics of conversation at the English societies recently.

## PRACTICAL POINTS FROM THE STUDIO.

**RETOUCHING UNVARNISHED GELATINE NEGATIVES.**—*Photo. Archiv* gives the following method for retouching unvarnished gelatine negatives: Pulverize a small quantity of resin, and dust this powder over a glass plate with about one-third of its volume of sugar, in order to render it less viscous and less glutinous. This powder is confined in a little gauze bag, well washed, which is gently tapped over the surface to be retouched, or a little of this powder may be lightly rubbed with the finger over the surface that needs retouching; this is sufficient to render the coating fit to permit the use of the pencil.

### A MUCILAGE FOR MOUNTING PRINTS.—

Mr. C. A. Parker gives the following formula for an excellent mucilage, for those who always like to have at hand a ready means of mounting their prints: Reduce to a fine power, in a mortar, 1 ounce of white and very pure gum Arabic, and add to it 3 ounces of dextrine, and 2 fluidounces of water, so as to form a thick paste. Dilute with 5 ounces, and boil over a water-bath for fifteen minutes, stirring continually; add a little ammonia; this composition may be kept for a long time.

**FIXING AND TONING BATH.**—By M. Blasing.

A. Distilled Water . . . . .	500 c. c.
Double Chloride of Gold and Potassium . . . . .	1 gr.
B. Distilled Water . . . . .	500 c. c.
Hyposulphite of Soda . . . . .	100 grs.
Sulpho-cyanide of Ammonium . . . . .	100 grs.

Pour A into B, agitating. Filter, and immerse the dry plates in the mixture. As soon as a warm tone (not black) is obtained, withdraw the prints and wash.

*Nature* informs its readers that for the first time a Professor of Sanitary Engineering has been appointed in the Imperial University of Japan, which institution *Nature* says is in advance of nine-tenths of the educational institutions of the west. We need not say that this refers to Prof. W. K.

Burton, author of the *Practical Guide to Photographic and Photo-Mechanical Printing Processes*, which is having such a ready sale in this country as well as in England.

### HYDROXYLAMINE DEVELOPMENT, WITH THE ADDITION OF HYDROQUINONE.—

#### No. 1.

Caustic Soda . . . . .	1 part.
Water . . . . .	8 parts.
White Sugar . . . . .	8 “
Syrup . . . . .	4 “

#### No. 2.

Hydroxylamine . . . . .	20 parts.
Distilled Water . . . . .	50 “
Alcohol . . . . .	250 “

#### Mix—

Solution No. 1 . . . . .	2 parts.
“ No. 2 . . . . .	1 part.
Water, in the proportion of 1 to 5 parts.	
Solution of Hydroquinone at	
1 for 10 of alcohol . . . . .	25 to 30 drops.

When the development is ended (5 to 6 minutes) place the negative in an alum bath until the disappearance of all greasiness. Wash well, fix, and wash again.—*Phot. Archiv*.

### MR. H. KOCH'S FORMULA FOR THE HYDROXYLAMINE DEVELOPMENT.—

#### No. 1.

Chlorhyd. Hydroxylamine 10 gr. ( $2\frac{1}{2}$ dr.).	
Alcohol . . . . .	150 c. c. (5 fl. oz.)

#### No. 2.

Caustic Soda, 10 grammes ( $2\frac{1}{2}$ drachms).	
Distilled Water, 80 grammes ( $20\frac{1}{2}$ drachms).	

#### For use, mix—

Solution No. 1 . . . . .	3 to 5 parts.
“ No. 2 . . . . .	6 “
Distilled Water . . . . .	40 to 50 “

If necessary add one to two drops of a solution of bromide of potassium at one for ten.—*Phot. Archiv*.

**MOUNTING A PHOTOGRAPH.**—The usually difficult operation of mounting large photographs has now been greatly simplified by a French artist. For this purpose he provides a large flat box of the size of the cardboard, and on the bottom of which the cardboard is laid; a kind of frame on

hinges, joined to the box in the form of a lid, is now closed and fastened down to the box by means of hooks; this frame or lid having an opening in the centre a quarter of an inch each way larger than the proof or print to be pasted. The box is only about one inch high, and on the bottom is placed a piece of wood about half an inch thick, bevelled off toward the four sides, and of the exact size of the print to be pasted. In the centre of the bottom of the box is fastened a strong screw, so as to raise or fall the piece of bevelled wood. Now, the bristol is placed in the box, the lid of which is closed, the screw is turned, the centre of the bristol is pressed up the hole in the lid, and the pasted proof is taken and placed on the bristol, the square hole serving at the same time as a guide. The quarter of an inch given to the opening on each side allows the proof to be taken by the fingers and placed in its proper position with the greatest ease. It appears that this simple bulging out of the middle of the cardboard, before pasting on the proof, gives perfect flatness to the whole when dry.—*Germantown Telegraph*.

TO RENDER CLICHES VERY CLEAN AND BRILLIANT.—Take a piece of cloth and pour on it a few drops of essence of turpentine; rub the gelatinized surface of the cliché; when the cloth is dry wet it as often as is necessary for the size of the plate, which at last will become very brilliant.—*L'Amateur Photographe*.

## AN ART CHAT ON THE PRIZE-TAKERS.

BY W. J. MOZART.

I HAVE not had time to study your illustrations or articles as I desire, so will confine myself to a few of the "prize-takers." In the January 7th number of this year a series of nine pictures, by Mr. Oscar Suck, of Carlsruhe, is given, that should be a perfect mine of study for any portrait photographer. Each and every one of these charming subjects is a gem of composition and lighting. The groups with two figures can be reproduced with modern society costumes, and

still retain all their charm of composition. Groups of this kind will certainly please your customers and their friends much better, when they see the proof, than the ordinary group will do. If they insist on having a common-place picture at the time of sitting, by all means make one for them, but, after doing so, persuade them, if possible, to allow you to make a negative (without charge to them) after some one of these styles, and ten chances to one they will take your picture in preference to their own idea.

By the way, right here let me call your attention to one thing in these pictures that is of especial importance, that is, *accessories*. Do you realize how little there is of them, and how important a part they play in the picture? If you don't, then when you try something of this sort just stick in an extra chair or a foot-stool, and see how quickly you can destroy the balance and restfulness.

On page 12 of this number I find a portrait of a person who should be well known by all readers of the PHILADELPHIA PHOTOGRAPHER, and one to whom they all owe a debt of gratitude they never can repay with money. I have never seen anywhere a photographic composition to equal it. There is not one line that is misplaced, and each one is so subtle that it is very difficult to analyze it to any greater extent than you have done. It is certainly a masterpiece, and I doubt very much the ability of any one to surpass it.

I am sorry that I cannot agree with your criticisms of all the pictures in the issue of March 3d. In the first of them the costume is a ridiculous nondescript, and is not indicative of any race or class; the accessories are of the same nature. If it were not labelled it would be hard to say what it is intended to represent. On close inspection, one can see that she holds a "hand-painted" tambourine. Were the picture carried out as it might be, with either an oriental costume and a background of an oriental courtyard or garden, or else a gipsy girl, with a landscape or country fair background, or one of the young girls that can be seen almost any day accompanying an organ-grinder, with a street background, and the figure posed with some action, we should have a picture that would represent a reality.

In the second case, "The Young Artist" is evidently exceedingly *young*, or else Mr. Cramer overlooked a very important fact, namely, that no artist could possibly paint with the *back* of his picture opposed to a *strong light*. Points of this description should never be overlooked, for if a story is to be told it should have some semblance of the truth.

"The Bugler," and "Gathering Oranges," are good ordinary specimens of posing and lighting.

In the issue of April 7th we have in the "Maniac" a gem picture that tells its own story at a glance, intensely dramatic in its pose, and in composition, almost perfect. Note how the strong light in the window is balanced by the dark of the left hand lower corner, and how it is kept subservient to the light on the figure; see how the line of the shadow helps the perspective. The dishevelled hair, tattered waist and dress, and expression of the face, are beyond criticism.

In regard to the "Man Know Thy Destiny," I certainly agree with your criticisms of January 7th, that it is ambitious, and that it has deficiencies. Had this subject been handled by an artist, he certainly would not have used a table of modern design, such as can be picked up in any furniture store, nor would he have given the monk a *bran new cowl* of a stiff goods that could "stand up alone." He would have probably also left out the carved fireplace, and, instead have given us the figure in his "cell," with a table of the twelfth or thirteenth century, and an oaken bench to match; and also a suggestion of the monk's cot or pallet. I think a little deeper study might have resulted in giving us more of a picture.

"The Harpist," is consistent in design, and well carried out. The posing of the fingers is especially good.

For the "Potter at the Wheel," I give Messrs. Knaffl Bros. my warmest congratulations; for men who will take so much trouble as they have done to produce their picture, are bound to succeed. Have we not all of us seen just this same kindly-faced old man in a similar workshop? This picture, perhaps, defies many art rules, but it has the merit of consistency, and it tells its story in its own quaint way. Moreover, it repre-

sents a class that will, before long, disappear, and so has the extra merit of historic interest.

Perhaps I have been over critical, and in some cases severe, but I have given my opinions honestly and without stint. As a parting piece of criticism I would advise the judges at the next exhibition to purchase (if they have not already done so) a copy of *Burnet*, and digest it well before they give out their prizes. Also, let them in their report give their reasons for adjudging prizes, and so endeavor to instruct those who are "left."

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### PRACTICAL ITEMS.

BY EMIL FREY,  
Corsicana, Texas.

ICE BOX.—For the approaching hot season, an ice box, constructed as follows, will be found sufficiently large to meet all requirements of even a pretentious establishment. The dimensions, of course, may be increased or diminished to suit the taste of the individual, the principle remaining the same.

Take an empty five gallon coal oil or varnish can and cut out one of the long sides, The nozzle by which the oil was drawn off has to be removed, and the hole soldered up. The can should then be provided with a small tin tube about the size of a pencil, and from three to four inches long. This pipe should be inserted near the bottom of the can, on the side. Next produce a wooden box about three inches larger *all around* than your tin can. Cover the bottom of your box with a mixture of one-half dry saw dust and one-half charcoal; let this layer be about two inches thick. Then bore a hole in the box to correspond with the tin pipe in the can. Put the can in the box, and let the end of the pipe extend into the outer world about an inch or so. Now fill up the space between the tin and box with the charcoal mixture. Pack tightly. Level with top of can. Fit four strips of wood on top of the coal around the tin. The space between the tin can and the top of the wooden box will now be about two inches, sufficient to receive the *inside* cover. Next put on your outside cover; both covers to be hinged and to fit snugly. Give the tin can a good coating of

asphaltum, and it will last for years. Provide the pipe with rubber tubing, any length desired, for drawing off the ice water.

It may at first seem that a box of the dimensions given above is entirely too small for practical use, but this is not the case.


Since dry plates are universally used we have dispensed with that cumbersome set of chemicals we were compelled to keep in order during the days of the glorious wet process. I am not a believer in the frigid development, hence I keep only either the pyro or soda solution in the cooler. When developing, I take the *ice-cold* solution from the box, mix it with the soda (in its natural temperature), and with cool water, thus raising the temperature of the combined developer to about 60° or 65° F., which I consider near right. The box being small, it requires only from six to eight pounds of ice per day. If ice water is needed, it may be obtained by drawing it from the rubber tube.

The box will also be found very useful for the following: It frequently happens during the summer that your printer is delayed in getting a large quantity of prints ready for the burnisher, and if he keeps the mounted prints laying over night they will be found too dry to burnish nicely next morning. You can easily overcome this difficulty by piling your prints, as soon as they will permit, then wrapping them in a clean *dry* towel, then in a *MOIST* one, and placing them on a little shelf or other contrivance in your ice box. You will find them in splendid condition next day for burnishing.

A box made out of a five gallon can will accommodate six to eight pounds of ice and four sixteen-ounce bottles.

**A STAND FOR LIGHTNING-FLASH.**—The stand described below will recommend itself on account of its portability, compactness, and practical utility. I am using what is known in the music trade as "the patented folding umbrella iron music stand."

For the purpose mentioned above, the desk part of the stand is dispensed with, and a small table top of wood, five by seven inches, substituted. Take a thin piece of flat iron, large enough to fit into the slot which ordinarily supports the desk, and bend it in this

manner  taking care the top is horizontal

tal when the longer arm (A) is inserted in the slot. The longer arm should be about three inches, and the shorter arm two, or two and one-half. For the table top, a piece of white pine 5-7, half inch thick, will be sufficiently large. At the bottom of the wood top fasten a piece of tin in such a manner as to allow the short arm (B) to be slipped in between. The top is covered with tin. Make also provision for a reflector back of the light. A tin groove at the back end of the wood top, will carry either a cardboard, tin, or concave reflector.

The top being in sections, it can easily be carried in your carrying-case, while the stand itself folds up *eighteen inches long by one inch at its lower end*, and when set up can be raised or lowered from two feet to six.

I fear my directions for making the top are not sufficiently explicit, or if they are, the arrangement may not answer for certain purposes. My intention is to simply call your attention to the *music-stand portion* of the apparatus, as I think that part cannot easily be improved upon, and then arrange the top to best answer your individual requirements. The iron folding stands are sold retail at from \$1.00 to \$1.50; the same, nickle plated, at \$3.00.

**LOW PRICES FOR LANTERN SLIDES AND MAGNESIUM.**—Whilst money is so cheap and abundant, the things that it purchases for us should be more and more dear. But in reality in many cases the contrary is remarked! Now we have Mr. Fry, of the well known photographic house, announcing that his plates for the lantern are sold everywhere at one shilling per dozen! It is probably because winter being almost over, the orders for this kind of plates must shortly fall off. I say, "nearly over," as spring is very backward this year. Our flowering almond bushes have not yet shown their pink flowers, and the *Pyrus Japonica* has as yet put forth but a few buds. It is also said that the price of magnesium has recently fallen, owing, no doubt, to the large quantity of this metal recently used in photography at night, by the new flash process.—DR. PHIPSON.

### OUR PICTURE.

ONE more mosaics made up from the pictures of the Chicago Prize Takers embellishes our current number. In making up these combinations, we have had more difficulty than we anticipated, from the fact that the original prints varied so in size. For example, Mr. Elton sent us five pictures to select from, and they were of three different sizes. Mr. Guerin's prints also varied, and were of sizes different from those of Mr. Elton. So that in one case, at our suggestion, in order to make the reductions of uniform size, Messrs. Roberts & Fellows resorted to the surgical operation described in our early May issue, and took out a piece from the centre of the fourth picture in our present mosaics. We think the operation improved the picture too, because, in our opinion, the composition was too much spread, the figures were too far apart.

And now, with reference to the present embellishment, Mr. G. W. Elton, of Palmyra, N. Y., writes concerning his share of it, as follows:

"My pictures were all made on 14 x 17 Stanley plates, and were developed by the following formula: No. 1. Water, 12 ozs.; sulph. soda cryst., 1 oz.; citric acid, 60 grs.; brom. ammonium, 40 grs.; pyro, 1 oz. No. 2. Water, 12 ozs.; sulph. soda cryst., 1 oz.; carb. potash, 3 ozs. Normal developer, 2 drachms No. 1, 2 drachms No. 2 to 2 ounces of water. After developing rinse well and soak for a few minutes in a weak solution of acetic acid and alum, wash thoroughly, and fix well in a clean solution of hypo; wash *very* thoroughly."

As we have said, these pictures formed part of Mr. Elton's exhibit at the last Chicago Convention, where they received one of the first gold medals. They also took a medal at the exhibition of the India Photographic Association, held in Calcutta last January. The Committees of Awards in Calcutta and Chicago were evidently of one mind in regard to the art displayed in these gems of photography. One can readily see that these pictures are not mere reproductions of painted backgrounds. Mr. Elton makes up most of his pictures with *natural*

*accessories*. For instance, in June "when the daisies blow," he makes several studies with the natural field daisies; and so on through the months, each month suggesting the subject.

We are glad to be able to state that Mr. Elton has concluded, at the request of a number of photographers, to publish some of his best productions. He will mail a catalogue of his prints, on application to him. The prices of these studies, single copy, 14 x 17, unmounted, is 75 cents. A set of four, unmounted, 14 x 17, \$2.50. Cabinets, mounted, \$1.50 per dozen. We were so frequently written to for prices of the former selections from the prize-taker's series, that we give the above information for mutual time saving.

This will probably close our series of mosaics combinations, made up from the large prints of the prize-takers, but we have some fine surprises yet in preparation, of a different kind. The titles of the present four are as follows:

- No. 1. "A secret under the rose I tell,  
Little maid I love thee well."
- No. 2. "Isn't that Sweet."
- No. 3. "Keeler's Best Story."
- No. 4. "Broke."

The first three are by Mr. Elton, and No. 4 is by Mr. F. W. Guerin, of St. Louis, from whom we have already heard.

Sometimes it is good "to see ourselves as others see us," and so, in closing, we add a few comments on this class of pictures, made by one of Chicago dailies during the exhibition.

"Another most interesting phase of the exhibition is what are technically called 'composition pictures.' This style of work gives the photographer opportunity to use invention and imagination. A subject or model is taken to correspond with his idea. The model is then appropriately dressed, and such surroundings are added that a scene is produced. This is sometimes very difficult work, as often particular expressions of the countenance have to be developed and caught, in order to carry out the idea. There is a picture of a little girl not over four years old standing on a pedestal. She is childishly holding up her dress like an apron with her hands, and her face is

beaming with smiles. The companion picture to this is the same little girl on the same pedestal, but her face has assumed the most doleful expression, and one big tear is running down her cheek.

"Another picture of the same nature and one that is attracting a good deal of attention, and causing a great many ladies to exclaim: 'The little dear,' and 'oh, my! isn't that sweet!'" represents a chubby little girl in a flower garden. She is bending over, her face radiant with expectation and desire, trying to clap her big hat down onto an apparently unconscious butterfly. In the companion picture the butterfly is soaring off, and the little girl stands looking up at it with such an expression of mingled disappointment and anger, it seems as though the picture was about to stamp its foot and cry. In the first she is supposed to say: 'I've got it!' In the second, 'Oh, it's gone!'

"One very ingenious picture represents a gambler meeting a poor woman with a babe. The pinched face and poor attire of the woman indicate plainer than words that she is asking assistance. The jauntily dressed gambler has a reckless smile on his face, and is holding his pockets, turned inside out, between the finger and thumb of each hand. You can almost hear him say: 'I'm in as bad a fix as you.'"

This last is the one in our group by Mr. Guerin.

The splendid prints used by us were made, as usual, by Messrs. Roberts & Fellows, on the famous N. P. A. brand of Dresden paper, supplied by Messrs. E. & H. T. Anthony & Co., of New York.

### KEEP ON THE TRACK.

ON page 287 of our issue of May 7th we referred to the operations of two gentlemen given to questionable practices. We have received the following concerning them. It is a plain commentary on just how such operations work and will be found interesting reading.

DEAR SIR: I read the article in the Syracuse paper. I am confident that J. E. Ferguson & Co., of Memphis, were the same as Loomis & Co., of Syracuse. On or about

January 25th, Messrs. J. E. Ferguson & Co., started a gallery at 391 Claire St., this city, and began to cut prices at once. The cut was followed and even beat by local photographers, so that in less than a week cabinets were \$1.00 per dozen in Memphis. The crowd was enormous and all galleries had to turn away customers for the first week. As we all held out, however, the cut lasted from January 29th to April 1st, during which time an astonishing quantity of negatives were made. After the second week of the cut the firm of Ferguson & Co. was changed to Rice & Co., in consequence of some remarks made by a photographer who was in possession of a letter from Richmond, Ind., where Ferguson and his gang had operated before coming here. From Rice & Co. it was changed to Lynch & Co., Rice having escaped with the second lot of boodle.

Then they advertised photograph gallery 391 Main St. for sale. On April 9th the gallery was closed by the Sheriff by orders of local creditors. The firm was then known as Rice, Lynch & Co., the three partners having all skipped. Finally Mr. Rice came back, assuming the role of a martyr, claiming that his partners had cheated him and that he would finish every dozen photographs taken here. This inspired his creditors and the public with new confidence and he was allowed to resume business.

Mr. Rice was afterward sent to jail under the charge of obtaining money under false pretence; he was released, however, and has succeeded in selling his half share in the gallery for one hundred dollars.

The descriptions given by the Syracuse papers are correct and correspond well, especially with Rice. Mr. Lynch is a very young man and got his share of the gallery for services as printer. He sold it as soon as he could. He had nothing to do with the swindling as he never got enough out of the place to pay his board. The gallery is now in charge of a Memphis photographer, and the photos are finished up for extra payments.

Rice, Ferguson & Jordan have left Memphis, and many victims are mourning over their lost dollars.

I started to write to you regarding the above affair several times but was kept busy on account of the dollar work. We managed to advance the price to \$3.00 per dozen for our cabinets, while our former uniform price was \$5 00 per dozen, and find business extremely dull.

Hoping this will be explicit enough to be of service to you and the fraternity, I remain,  
Yours very truly,

C. F. KRAUSS,  
of Krauss & Ennerle.

### SOCIETY GOSSIP.

WILL the Secretaries of our Societies please note, that matter for insertion in our magazine must be received a week before our day of issue—i. e., by the second and fourth Saturday of the month.

THE Camera Club of Hartford had its spring outing May 30th, at Greystone, Conn.

THE St. Louis Camera Club has a "Field Day" the first week in June.

"How to mix ferrous oxalate developer," was the latest subject of discussion at St. Louis C. C. Father Charropin suggested that the tendency of protosulphate of iron to oxidize in solution could best be remedied by acidifying the water with C.P. sulphuric acid before adding the iron to make the iron solution.

THE Photographic Society of Philadelphia proposes to hold an exhibition from May 23d to June 2d, inclusive. At the last meeting Mr. Frederick E. Ives made the following communication:

"At a recent meeting of the Franklin Institute, I announced the successful application of chlorophyl to gelatine bromide dry plates, in the following manner: Rapid commercial plates were flowed with suitable alcoholic solution of chlorophyl, then dried, then soaked in water. The plates prepared in this manner, and then dried, are more color-sensitive than commercial orthochromatic plates, besides having relatively sufficient red sensitiveness; but owing to excessive blue sensitiveness, should be used with a deep orange color screen. The successful application of chlorophyl in

this manner suggested a trial of other color-sensitizers in the same way. The result was a great surprise. Rapid commercial gelatine bromide plates flowed with alcoholic solution of erythrosine, then dried, then washed or soaked in water, proved to be ten or fifteen times more color-sensitive than commercial orthochromatic plates. They work clear and bright, and quick enough for portrait work with the yellow screen."

For instantaneous exposures at the seashore, Mr. Carbutt believed most photographers used too rapid a plate, and he further remarked that orthochromatic plates would give better results for such work than plain bromide plates; also in developing time exposures, better results will be secured when using a fairly rapid plate, by diluting the alkali solution, and using bromide in the developer, bringing out the image slowly.

The Secretary showed a convenient device for use in the dark-room for cutting plates in half. It consisted of a thin board about 7 x 8 inches, on one side of which a strip of wood was attached  $4\frac{3}{8}$  inches from one edge. To cut a 4 x 4 plate in half, it is laid with one end close to the edge of a table or other suitable support. The cutting board is laid on top with the strip pressing closely against edges of both plate and table. This will bring the edge of the board in proper position for use as a ruler to guide the diamond or a glass cutter, so as to cut the plate exactly in half without necessity of measuring. Plates can be cut with utmost convenience and accuracy in absolute darkness. Other strips can be added, or the position of strips made adjustable for cutting plates of any required size.

THE German Photographic Society of New York, 62 E. 4th St., New York City, has elected the following officers for the ensuing year:

*President*.—A. Mildenerger.

*Vice-President*.—O. Buehler.

*Trustees*.—L. Nagel, H. Fruhwirth, A. Baumgarten.

*Treasurer*.—G. E. Pellnitz.

*Financial Secretary*.—L. Schill.

*Secretaries*.—A. Esselbaum, H. G. Borgfeldt.

*Librarians*.—L. Burkhardt, L. Schmidt.

THE New York Society held a special lantern meeting on May 18th.

THE papers read at the last meeting of the Brooklyn Academy of Photography, were "The Speed of the Prosch Shutters," by Mr. W. Goold Levison, (see our next issue), and "The Rescue of the Brighton Beach Hotel," illustrated by views obtained by the historical section. Mr. A. D. Fisk exhibited his new dissolving lantern.

### NEW BLUE PRINT FORMULA.

BY S. P. WATT,  
Columbus, O.

THE preservation of the ammonium citrate of iron solution in the formula generally used is often a troublesome matter, when larger quantities are made up than can be applied and printed immediately. I have recently found a remedy for the difficulty by the addition of boracic acid.

The following is the new formula:

(A)	
Citrate of Iron and Ammonium	2 oz.
Boracic Acid . . . .	10 gr.
Water (pure) . . . .	4 oz.

(B)	
Ferrieyanide of Potassium . .	1 oz.
Water . . . . .	4 oz.

To use, mix in equal quantities, and apply as usual.

A few additional notes may be of interest to amateurs. Paper may be safely coated in any ordinarily lighted room and spread about; care being taken that it is perfectly dry before putting away. If linen or unsized paper is used, the addition of gum is beneficial, but it should not be employed on a sized paper as the sizing sufficiently accomplishes the same object. Where warm water can be had the washing of prints is greatly facilitated. The addition of boracic acid gives a lighter print while still wet from washing, but becomes a brilliant blue if properly done. It must also be remembered that it takes a fine negative to give a fine blue print.

## Editor's Table.

OUR leading paper this month by Dr. J. J. HIGGINS is one of the most important and valuable we ever published. To our personal knowledge he has been industriously working at it for several months. Special signs and drawings and zinc etchings have been made for him and we have spared no expense to secure the putting out of his admirable paper in the best possible style.

*Photo-engraving, Photo-etching, and Photo-lithography*, by W. T. Wilkinson. New York: Edward L. Wilson, Pub. Price, \$3.00.

A long-promised work on this subject is now ready. It is mainly upon an entirely new branch of the art, and reveals for the good of the picture-making fraternity what has long been kept a secret from them. It contains the complete instructions and formulæ by an expert in England (W. T. Wilkinson), newly written, in the main, which, combined with contributions by Mr. Wilson himself, the editor of the book, and translations from the French and German, make the new book eminently thorough

and practical. There is already a demand for this kind of work, and many inquiries for instructions come. A very fascinating process for any one. Every one who wishes may now easily learn how to supply plates for all classes of *illustration*, and the book will also show how to select and apply the requisites for production. A demand has surely come, as all newspapers, magazines, and crafts use photo-engravings. The book is the same sized page as *Photographs and Quarter Century* (6½ by 8½ inches), illustrated, 180 pages, and cloth bound. Price, \$3.00.—*Photo Times*.

THE new Seed developer, ready for use, is creating a big excitement. Manufactured and guaranteed by such a firm as the Seed Dry Plate Co., St. Louis, it must have a ready acceptance and great popularity.

THE prize offers of the Air-brush Manufacturing Co., Rockford, Ill., are very attractive and useful, and worth working for. See their card in Specialties.

THE Executive Committee of the Vienna Amateur Exhibition desire us to say that all exhibits forwarded, freight paid, to Messrs. Schencker & Co., 64 Moorgate St., S. E. London, England, will be forwarded thence to Vienna and return free of charge. See former notice.

ARISTOTYPE PAPER.—An early issue of our magazine (perhaps the early July), will be embellished by a cabinet picture printed on the original Aristotype paper sent us by Dr. ED. LIESEGANG, Düsseldorf, Germany. It will be very beautiful and will enable those to whom an American article of this paper is offered to judge what ought to be expected of it.

A NEW advertisement appears now, for Messrs. W. H. WALMSLEY & Co., Philadelphia. The business of this popular firm is increasing immensely.

FOREIGN HONORS.—We are pleased to learn that our esteemed friend Mr. A. R. DRESSER, whose pictures appeared in our last issue, obtained a medal for his lantern slides both at the Liverpool and Glasgow exhibitions. He will tell us how he made the slides, in our next number. We were promised the article for our last issue, but Mr. Dresser's illness delayed it.

*A Quarter Century in Photography*, by Edw. L. Wilson, is a most interesting history of the past progress and a complete text-book of the art of which it treats. Persons interested in practical photography will find the work both useful and entertaining. It is published by E. L. Wilson, 853 Broadway, New York.—*Public Opinion*.

LENSES AT THE AMATEURS' EXHIBITION (BOSTON).—One of the most interesting features of the neat and complete catalogue of the recent joint exhibition held by the amateurs at Boston, is the column devoted to the various makes and styles of lenses used by the various exhibitors. A careful inspection reveals the following figures. Number of exhibitors 81, who employed 35 Euryscopes (Voigtländer's), 30 Darlot's, 23 Dallmeyer's, 12 Ross', 10 Beck's, and 4 Morrison's. The diplomas were bestowed upon pictures as follows. Three (English) exhibitors with Dallmeyer lenses, four (American) exhibitors with Dallmeyers, four with Euryscopes, two with Ross, one each with Steinheil and Darlot.

DR. JUST's article will be resumed in our next number and continued regularly thereafter to the end.

MR. A. R. DRESSER will have a capital paper on transparencies in our next issue.

MR. W. GOULD LEVISON's interesting paper on "The Duration of Instantaneous Exposures" will be a leading feature of our middle June issue and surprise some "quick" workers.

A FULL notice of the Boston exhibition will appear in our next. Deferred for want of space.

MARRIED.—At the residence of the bride, on Thursday evening May 24th, Mr. FRANK W. TRITT to Miss JETTIE PEARL, daughter of Lafe Wonders, Esq., the veteran photographer, at Alliance, O. Many happy years for the young people.

MR. C. F. O'KEEFE, Fort Madison, Iowa, is an excellent photographer, especially successful with children. He has favored us with a number of his cabinet pictures. He may well take pride and pleasure in such good work. His picture of a nun is a beautiful and delicate example of lighting.

PRICES of the "Hub" brand of pressed rubber trays have been reduced. By the new list a 7 x 9 is only seventy-two cents.

THE amateur photo supply list issued by Messrs. ALLEN BROS., of Detroit, Mich., is the neatest we have seen. It contains nearly one hundred finely illustrated pages, and is so compact that it will go in the vest pocket. Secure one and consult it.

MR. A. A. ROUNDS, Yankton, Dakota, has favored us with a number of examples of his work. They prove him to be an ambitious, careful, and skilful operator. A *genre* picture—a sweet young lady dressed as a servant girl with broom and bucket at hand—is one of the best. One of an owl and a cat is also well managed. Mr. Rounds uses Seed plates.

MR. W. H. BAKER, Saratoga Springs, N. Y., has sent us a fine cabinet of a lovely little girl.

MR. F. E. IVES has favored us with a pamphlet containing his paper on some recent advances in photography, as read before the Franklin Institute.

50.—These two figures represent the number of years lived by that good man and good photographer of St. Louis, G. CRAMER, Esq., up to May 20th. May he live to enjoy another 50.

MR. OSCAR SUCK, Carlsruhe, Germany, has sent us a fine series of views (11x14) of the funeral procession of the late Prince Ludwig of Baden—taken instantaneously. They are admirably well done.

PHOTO-ENGRAVING. — Mr. WILKINSON's new book is already an assured success. Many letters of approval have reached us. One of the most appreciative and sensible is from Mr. W. H. H. CLARK, of St. Louis. He says:

"It is a handsomely gotten up volume. You believe in exterior decorations as well as interior usefulness, and that is right, for appearance is everything nowadays. It seems to me that the book ought to sell well, for mechanical printing, or rather, preparing plates is fast becoming a necessity with the photographer who would keep abreast of the times. The most successful photographer is he who recognizes that the world moves and prepares himself to move along with it."

MR. WILKINSON is expected in this country soon. We shall announce his arrival.

"PEACE AND WAR" DID IT.—I enclose \$3.00 for the new work by Mr. Wilkinson.—A. C. AUSTIN, Nashua, N. H.

A BRILLIANT future as a cantatrice is predicted for Miss DELLA FOX, daughter of Mr. A. J. Fox the veteran St. Louis photographer. Recently, previous to her departure for Europe for study, she was presented with a diamond badge by the friends of her father and herself. The donors were as follows:

Mrs. Fitzgibbon-Clark, J. C. Somerville, G. Cramer, M. A. Seed Dry Plate Co., W. H. H. Clark, H. A. Hyatt, F. W. Guerin, L. F. Hammer, J. C. Strauss, Charlie Meier, J. A. Scholten, I. M. Mead, H. D. Newbold, C. W. Cassely, J. A. Sherrar, Robt. Benecke, Martin Sherer, G. H. McConnell, Kuhn Bros., Rosch Bros., J. W. Fisher, L. A. Dipple, D. B. Taylor, H. Holborn, Chas. Klotter, F. R. Parsons, Wm. Hazenstab, John Hazenstab, A. S. Shaeffer, R. M. Phillips, J. A. Linder.

THE *Anti-Tobacco Gem and Temperance Brief*, illustrated, is a neat little paper published by Mr. C. H. Shepherd, Melvin Village, N. H. It is fighting evil against great odds and deserves to be encouraged. It is monthly and only 20 cents a year. It has already raised its voice against the degradation of our art by tobacco

manufacturers, and we hope to see it enter the dark-room and drive out the smoke therefrom.

A WONDERFUL view comes from Mr. W. K. MOODY of the *Boston Herald*. It is of a part of North Market St., taken during the busiest hour of that busy thoroughfare. A great double team is in the foreground, and beyond are all sorts of drays and carts loading and unloading, and moving to and fro with people walking—truly a lively scene. Everything is sharp and fine. It was made with a No. 2 Euryscope, second stop. Quickest instantaneous exposure.

VIEWS OF BERMUDA.—Mr. W. G. C. KIMBALL, Concord, N. H., called recently and left us a number of his lately taken views of Bermuda. They are on 5x8 plates and are admirable. One can scarcely think that these rugged coast views and extensive palmetto groves can be found in such close proximity. Street scenes, groups of natives, hotels, and drives, add to a picturesque and interesting assortment, and are of excellent quality.

REMOVAL.—Mr. WM. B. HOLMES, the veteran stock dealer, has removed to 775 Broadway, New York. Give him a big trial order.

SCOVILL'S A. B. C. outfit is a wonder. Send for the circular.

MR. W. J. DUNIHUE, formerly of Sinclairville N. Y., has entered partnership with Mr. B. E. PRUDEN, and they will have a ground floor gallery and an art store at Jamestown, N. Y.

SILHOUTTE PHOTOGRAPHS.—Who will send us the best method for making them?

CARBUTT'S "PROCESS" PLATES FOR PHOTO-ENGRAVING.—Always up to the times, Mr. Carbutt has already introduced a capital plate for zinc-etching. A testimonial as to its splendid quality is addressed to him as follows:

DEAR SIR: I have examined most critically and submitted to the severest test, the line negative taken on one of your process stripping plates sent me, and find it fully equal to negatives by the old wet plate process for photo-mechanical engraving purposes, I am more than pleased with it. These plates would seem to be just what I want. Send me by express through G. A. Douglass & Co., the following trial order of eight dozen. Yours truly,

THE CHICAGO LEGAL NEWS Co.,

James B. Bradwell, Sec.

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. ~~We~~ We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

**MAKE OUT YOUR OWN BILL,** and remit cash with your advertisements, or they will not be inserted.

WANTED.—A first-class operator. Address,  
STRAUSS,  
1245-47 Franklin ave., St. Louis, Mo.

WANTED IMMEDIATELY.—A first-class printer in a large western city. One who can do A No. 1 printing. A rare chance for the right man.

A. D. MITCHELL,  
805 Main St., Kansas City, Mo.

WANTED.—A strictly first-class operator who can also work in crayon. Send photograph of self, samples of work, and references.

ADT & BROTHER,  
Waterbury, Conn.

FOR SALE.—The lease and location of gallery occupied by me for 14 years in the heart of the city; fine printing house costing \$175. Stoves, negative elevator thrown in, \$400 cash. Use of all furnishings for a time.

A. E. DUMBLE,  
Rochester, New York.

FOR SALE OR EXCHANGE.—Good gallery on principal thoroughfare; best location in city. Sales, \$9000 per year. Imperials \$3 to \$4 per dozen. Will sell reasonable for cash, or exchange for gallery in country, on account of ill-health. Address for particulars,

G. GENNERT,  
54 E. 10th St., New York City.

SITUATION WANTED.—As operator and retoucher, or would run a gallery on shares. South preferred. Four years with G. Cramer, St. Louis. Eight years experience in my own gallery. Address,

J. P. BERGERON,  
Care Wyatt McGaffey,  
28 Metropolitan Block, Chicago.

### VON MÖELK'S ADJUSTABLE VIGNETTER.

It eclipses all others. This new Vignetter is the result of twenty years' experience as a Practical Printer in the Leading Galleries of the country. I place the above Vignetter on the market. They are unequalled for quick and reliable work.

Sample Cabinet Photo and Vignetter sent by mail on receipt of 75 cents. One Dozen, \$6.00; Half Dozen, \$4.00.

C. VON MÖELK,  
43 English Ave., Indianapolis Ind.

### ARISTOTYPES.

Those having bought Aristotype Paper and Emulsion, and not being able to work it successfully, can exchange the paper for a genuine Sensitized Aristotype paper, by addressing for terms at once,

E. A. GILBERT,  
Jamestown, New York.

THE KING OF BURNISHERS.—The Quadruplex Enameler is gaining ground every day, they are being ordered from all parts of the world. Conservative photographers who bought small ones to try, are now ordering large ones. You make a great mistake if you buy a burnisher without thoroughly investigating the merits of the Quadruplex, manufactured by SMITH & PATTISON, 261 and 263 State St., Chicago.

*Photo-Engraving, Photo-Etching,  
and Photo-Lithography.*  
*Just ready. Price \$3, post-paid.*  
*See advertisement.*

### AIR BRUSH MFG. CO. PRIZES.

The Air Brush Mfg. Co. will offer the following prizes at the Convention of the Photographers' Association of America, to be held in Minneapolis, in July, 1888:

One complete Air Brush will be given for the best portrait in black and white, finished with the Air Brush.

One complete Air Brush will be given for the best portrait in water colors, finished with the Air Brush.

All work competing for these prizes shall be over prints.

The awards shall be made during the Convention by three judges who shall be members of the P. A. of A., and who shall be chosen at the time of the Convention.

WHEN you want a Camera Stand for any size portrait work, don't fail to investigate the merits of the "Magic;" it is great. No cogs, set-screws, or weights: but a more complete article has never been produced. Ask the manufacturers, SMITH & PATTISON, 261 and 263 State Street, Chicago, to send you descriptive circular and price list. You can buy one of any dealer.

NEW SULPHITE OF SODA (Crystallized).—Price: In 5 pound cans, \$1.00, 1 pound cans, 35 cents,  $\frac{1}{2}$  pound cans, 25 cents. For sale, wholesale and retail, by

GEORGE MURPHY,  
No. 2 Bond Street, New York.

FOR SALE.—As they are, six direct solar cameras, 14 inch condensers; will print up to 25 x 30. Lately in use at Albert Moore's. Also a library of photographic books. Cheap for cash. Address,

W. L. SHOEMAKER, Phoenixville, Pa.

1886.—February 6th wanted. Copies of the PHILADELPHIA PHOTOGRAPHER for Feb. 6, 1886 wanted. A copy of 1886 *Mosaics* will be given for each such number sent to this office. EDWARD L. WILSON.

## BUY BURNET.

THE Improved Duplex Rotary Burnisher with one hand set-screw, manufactured by SMITH & PATTISON, 261 and 263 State St., Chicago, is surely a good one, it is a great improvement in several important points, and the full nickel-plated finish should please the most exacting photographer. The only machine that lays over it is the "King" Quadruplex, made by the same firm, who are pleased to send full descriptive circulars to all applicants.

FOR SALE.—In a city, 30,000 population, A 1 photograph gallery. Cause for selling, bad health of owner, will be sold at a sacrifice.

A. M. TURNER,  
200 Main St., Norfolk, Va.

### FOR SALE.

1 5 x 8 Camera.....	\$5 00
1 20 x 25 Bath Holder.....	15 00
1 Wall and Gate Posts.....	7 00
1 Circular Rustic Tree Seat.....	4 00
8 x 10 Printing Frames, each.....	25
11 x 14 Printing Frames, each.....	35
14 x 17 Printing Frames, each.....	50
1 New 11 x 14 Optical Co.'s View Box revolving back, Barnett holders.....	50 00
1 4 x 5 View lens.....	3 00
1 14 x 17 View lens, good for any size plate.....	10 00
1 Pair Zentmayer Stereo lenses.....	5 00
1 New York Optical lens 4 x 5.....	5 00
5 x 8 Old Negatives, not retouched, each	1
8 x 10 Old Negatives, not retouched, each.....	2

PACH BROS.,  
841 Broadway, N. Y.

FOR SALE.—Two photograph wagons, which were formerly used as dark-rooms. Both have enclosed steps in back.

PACH BROS., 841 Broadway, N. Y.

ADT'S PATENT PRINTING FRAME.—The printing frame of the future. Considering the construction of the Back-board, the Patent Tally, and the Elastic Felt Pad, the Adt Patent Printing Frame is the cheapest and best in the market.

### PRICES.

3 $\frac{1}{4}$ x 4 $\frac{1}{4}$ . . .	\$0.50	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ . . .	\$0.75
4 x 5 . . .	50	8 x 10 . . .	85
4 $\frac{1}{4}$ x 5 $\frac{1}{2}$ . . .	50	10 x 12 . . .	1.15
4 $\frac{1}{2}$ x 6 $\frac{1}{2}$ . . .	60	11 x 14 . . .	2.15
5 x 7 . . .	65	13 x 16 . . .	2.40
5 x 8 . . .	65	14 x 17 . . .	2.80

When made with backs to open lengthways, an additional charge of ten per cent. will be added to the foregoing prices.

Now in stock.

GEORGE MURPHY,  
2 Bond St., New York.

FOR SALE.—Several sets of apparatus and lenses suitable for amateurs.

Address "E."

Office of PHILADELPHIA PHOTOGRAPHER.

JUST OUT.—The Stoddard Print Roller, the best in the market. Price, \$1.00.

GEORGE MURPHY,  
No. 2 Bond St., New York City.

VIOLET LIGHTNING FLASH.—(Brutum Fulmen.) This compound is made by a new formula, and produces the most powerful actinic light yet discovered. It contains neither acid, chlorate of potash, nor animal charcoal. It oxygenizes more rapidly than any flash compound heretofore offered, and may be used on card-board or glass with safety.

Twenty grains is quantum sufficit for an ordinary flash (instead of forty to sixty grains, as stated on our copyrighted directions). According to subject, distance, quality of lens and rapidity of plates used, vary the above quantity. A twenty-grain measuring-cup is sent with every bottle. Handle with care.

BUCHANAN, BROMLEY & Co.,  
Manufacturers,  
Philadelphia, Pa.

HIANCE'S Ground Glass Substitute makes a splendid backing for window transparencies and glass stereographs. It softens the light wherever used.

## A SECOND EDITION

JUST RECEIVED FROM ENGLAND,

PROF. W. K. BURTON'S NEW BOOK,

*Practical Guide to Photographic and Photo-mechanical Printing Processes.*

Price, \$1.00.

MARION &amp; Co., Publishers, London.

The well-known author says, "The object of this work is to give practical instructions in the working of all processes which are in actual everyday use at this date."

The *Amateur Photographer* (London, Feb. 3d) says, "Any matter from the pen of Prof. W. K. Burton (of the Imperial University, Tokio, Japan) deserves and commands attention by all workers in photography. . . . We are sure it (this book) will be their constant reference-book."

Mr. Burton's capital papers in the *Photographic Times* have made him very popular in America, and his book will prove welcome to his many friends here. I have just received (too late for review) an edition for this market. Copies mailed on receipt of price.

EDWARD L. WILSON,

853 Broadway, New York.

THE old reliable Common Sense Tray for silvering, washing, toning, and developing bromide prints, etc., is gaining popularity every day; it is very light, quite strong, and durable. The cheapest, reliable tray ever produced. Has been successfully used by hundreds, for years. SMITH & PATTISON, 261 and 263 State St., Chicago, Sole Agents. For sale by all dealers.

## — EUREKA! —

(BARGAIN LIST.)

1 25 inch Entrekin Burnisher . . .	\$45.00
3 Bergner Stereo Cutters, each . . .	15.00
1 Darlot $\frac{1}{2}$ size Portrait Lens, Rack, and Pinion Central Stops . . .	14.00
1 $\frac{1}{4}$ size Lantern Objective, no name, good condition . . .	5.00
1 No. 2 Euryscope Lens . . .	40.00
1 Pair (matched) No. 0 Euryscope Stereo Lenses . . .	40.00
1 18 x 24 Common-sense Tray, good as new . . .	3.75
1 Marion Hard Rubber Adaptable Drop Shutter, cost \$10.00 . . .	5.00
1 No. 2 Darlot Rapid Hemispherical . . .	20.00
1 E. A. Single Combination Lens, Rack and Pinion Movement . . .	5.50
1 Ross $\frac{1}{2}$ size Portrait Lens, Rack and Pinion, Central Stops . . .	30.00

The above bargains are offered for sale for cash and are all guaranteed to be in good working condition or no sale. ROBERTS & FELLOWS, 1125 Chestnut St., Philadelphia, Pa.

## TALCOTT'S PATENT GLASS MOUNTS.

NASHUA, N. H., March 13, 1888.

E. K. TALCOTT, Esq.

DEAR SIR: I desire to express my unqualified satisfaction with your very superior Patent Glass Mount. It almost invariably calls forth loud praises for its beauty, brilliancy, and novelty, from all whom I supply, and its undoubted durability makes it a valuable acquisition.

Yours respectfully,

A. C. AUSTIN.

*Photo-Engraving, Photo-Etching, and Photo-Lithography.*

*Just ready. Price \$3, post-paid. See advertisement.*

SAMUEL G. NIXON,

Portrait Artist,

813 Arch St., Philadelphia, Pa.

Established December, 1878.

Photographic Enlargements supplied and finished in Ink, Crayon, and Water Colors. Terms on application.

To PHOTOGRAPHERS.

N. B.—If a picture furnished by me is not satisfactory to your patrons, send it back and I will endeavor to correct it without extra charge.

S. G. NIXON.

## ART OF MAKING PORTRAITS IN CRAYON ON SOLAR ENLARGEMENTS.

By E. LONG.

SECOND EDITION.—NOW READY.

The *Photo Times* says: "The second edition, rewritten and enlarged, of this popular handbook for crayon artists, has recently been issued. The first edition of this book being small and published rather as an experiment, many important points on the subject had to be treated briefly. But that edition meeting with such a warm reception and selling so rapidly, the author resolved to enlarge the second edition and give his readers the benefit of the knowledge which he had since gained of new materials and a fuller description of his methods of handling them. The little work treats solely of bust and vignette portraits, and its aim is to assist young artists who are struggling alone beyond the reach of competent teachers. After an introductory confidential chat with the students, we have chapters on the Solar Print, Crayon Materials and How to Prepare them; the Crayon Print, Interlining and Retouching; Hair and Beard; Drapery; Background; and Concluding Remarks." It is the best.

Price, in paper cover, fifty cents.

For sale by EDWARD L. WILSON,

853 Broadway, New York.

To FERROTYPES.—The Eagle Ferrotypes Colodion. Use it for fine effects.

GEORGE MURPHY,

2 Bond St., New York City.

## PHOTOGRAPHIC MASKS.

The Rockwood Triplex Portrait Mask. One Dozen mailed on receipt of 50 cents. Also, manufacturer of all kinds of picture mats.

H. SENEGEL,  
710 Broadway, N. Y.

THE PLATINOTYPE for Amateurs; simple to work, and the results artistic and beautiful. Send ten cents for sample landscape and book of instructions.

WILLIS & CLEMENTS,  
1112 Hunter St., Philadelphia.

PRACTICAL ESSAYS ON ART. By John Burnet. Reproduced entirely by Photo-Lithography, by the Photo-Gravure Company, New York. Arranged and Edited by Edward L. Wilson, New York: Edward L. Wilson, Publisher, 1888. Price, \$4.00.

The publication of these reproductions will be hailed with great pleasure by all students of art, and particularly by artistic photographers. As many know, the original work was published in three parts, as follows: 1. Practical Hints on Composition in Printing, illustrated by examples from the great masters of the Italian, Flemish, and Dutch Schools, published in 1822. 2. Practical Hints on Light and Shade in Painting, illustrated by examples from the Italian, Flemish, and Dutch Schools, published in 1826. 3. An Essay on the Education of the Eye, with reference to Painting, illustrated by copper-plates and woodcuts, published in 1837. The original price was in the neighborhood of \$14, and for a number of years the work has been scarce enough to command many times that amount.

It is to be seriously regretted that so many competent draughtsmen and technically first-class photographers have grown up without the advantages of a work of this kind, and the fact is not sufficiently appreciated that the main difference between the artist and the picture-maker lies in the one point of knowing how to choose a position. To expose a plate on a beautiful landscape, develop it according to rule and then *pay another man to print from it*, is the height of the ambition of many amateurs; but let the results of such work be compared with those of the careful student of positions and compositions and they are nowhere. To be able to estimate exposure and calculate the strength of your developer properly are all very well; but add to this the knowledge of where to stand your tripod and how to choose the best conditions of light and shadow, and you are no longer merely a photographer, you become an artist who uses the camera as an instrument of precision instead of making it a toy. Another class of students to whom Burnet's Art Essays will render incalculable aid is the critical class, and here a great aid is rendered to the intelligent public as well, for a critic who thinks he knows, but who judges without stating the principles upon which his judgment is founded, becomes a nuisance to his friends and a burden to society. This trouble can now be readily obviated by a careful study of the Art Essays.—*Iron.*

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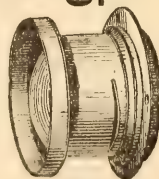
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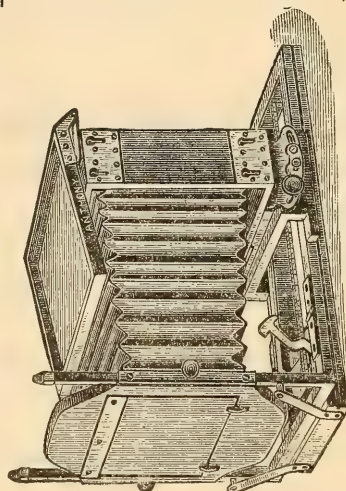
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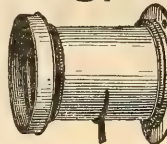
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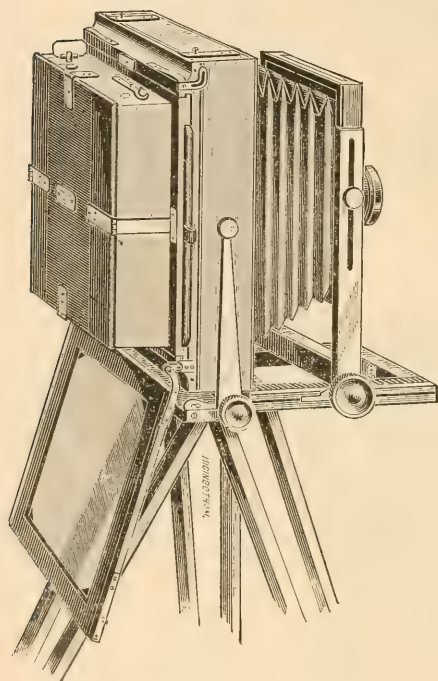
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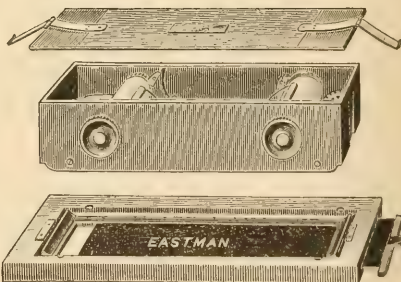
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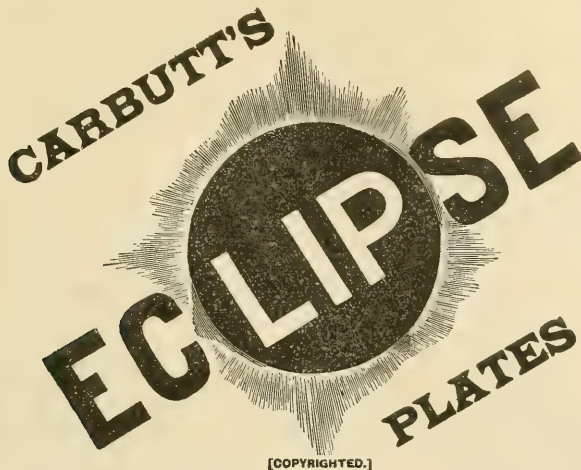
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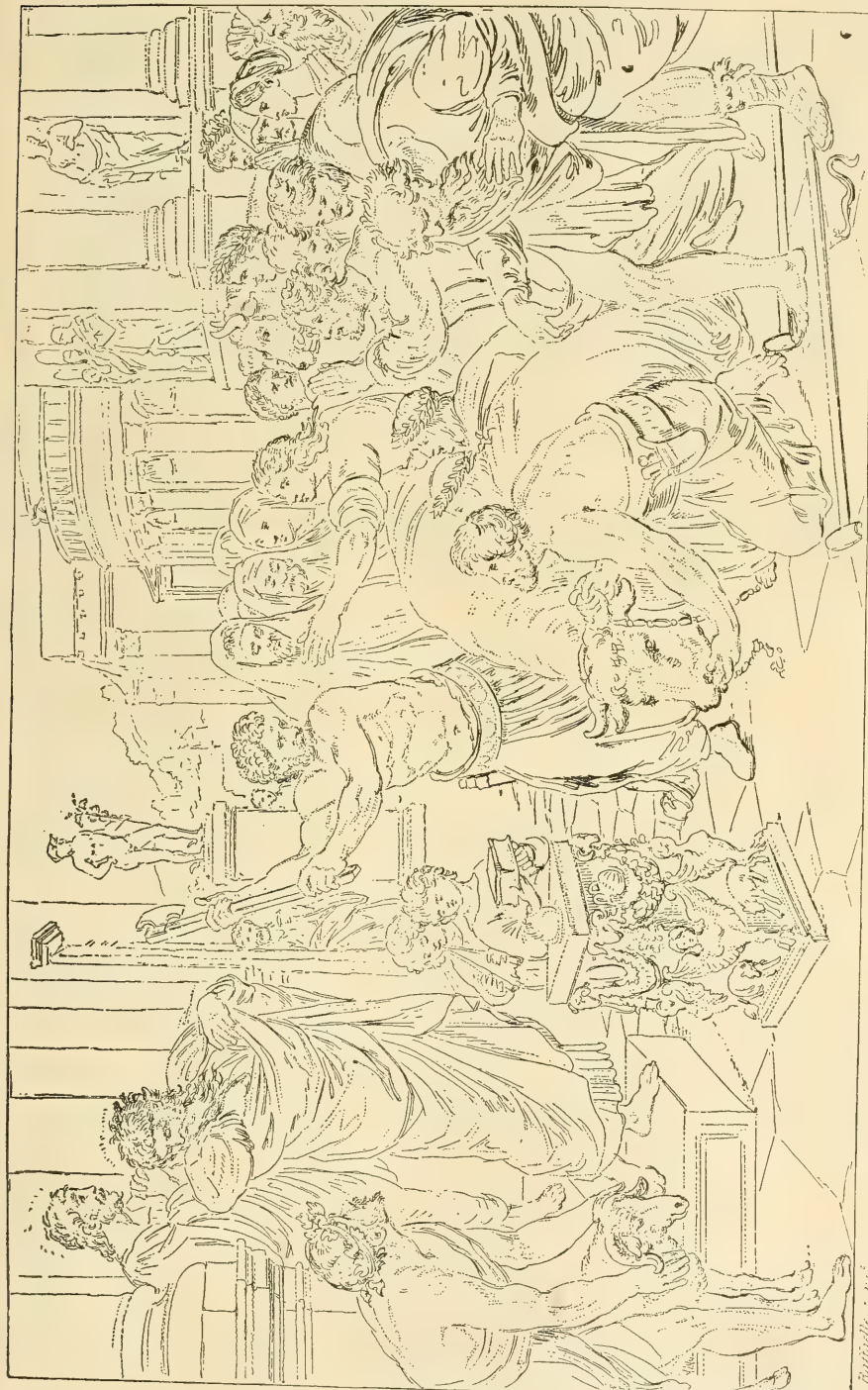
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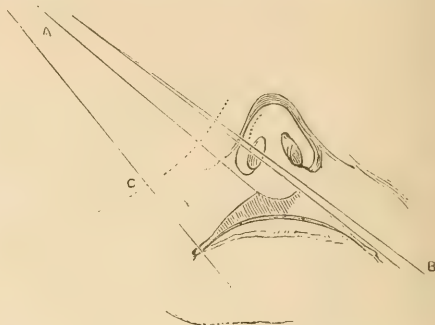
WHILE all parts are of great value to the student, we think the part on "Education of the Eye" will be found of most practical value to the photographer, as that organ is very deficient, and much in need of education.

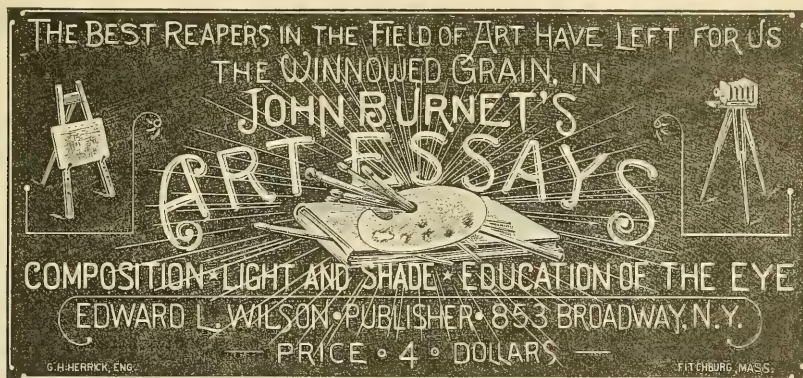
The work is printed in clear, large type, making it very easy to read. It is strongly bound, and will prove a valuable addition to any library. — *St. Louis Photographer*.

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(See next page.)





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CHAPTERS XXIV to XXX.—The Carbon Processes.

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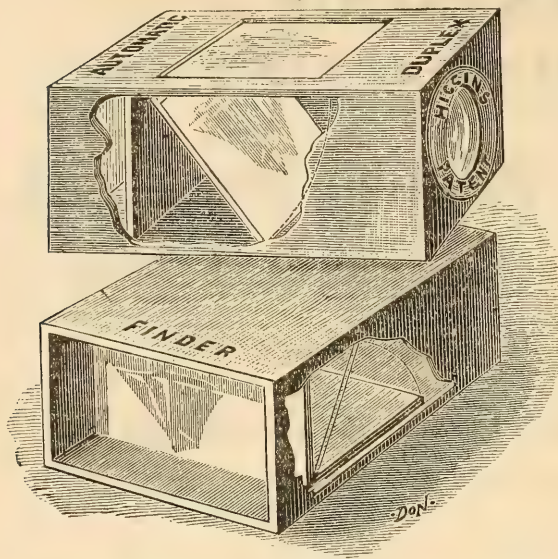
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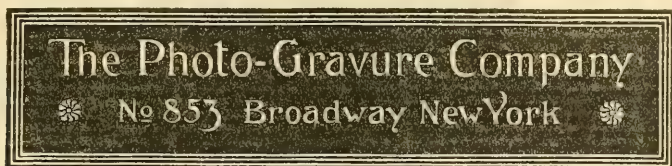
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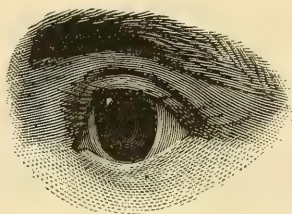
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[OVER.]

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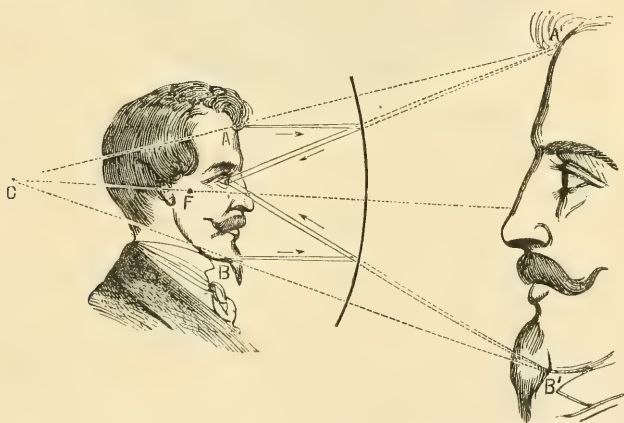
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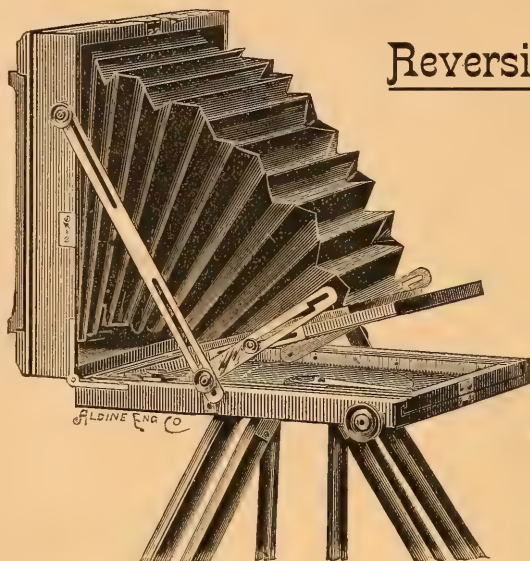
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MY DEAR SIR: *Mosaics* and the two numbers of the *Philadelphia Photographer* (for which my best thanks) came duly to hand, together with *Burnet* in his modern garb.

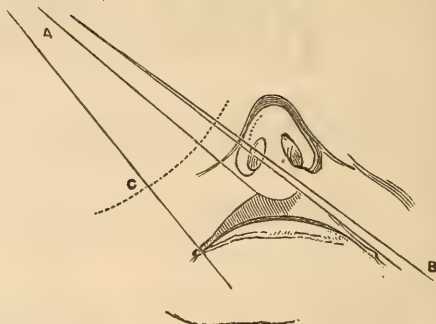
With *Burnet* I am very much pleased, and photographers and all other artists owe you a debt of gratitude for giving them the opportunity of becoming possessors of such a work. There are certain books which do not lose their value through time, but which, being out of print, become exceedingly scarce, and are only to be found in big libraries. Hence they are not accessible to those to whom their contents would be of the greatest value and assistance. Any one who, like you, reproduces a book of this kind, and makes available the knowledge contained in it, renders a distinct service in the cause of culture.

The Yorkshire College, Leeds, England, February 25, 1888.

The publication of this work is a unique photographic performance, and will open up a new field of usefulness for our art. Read it!

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(See next page.)



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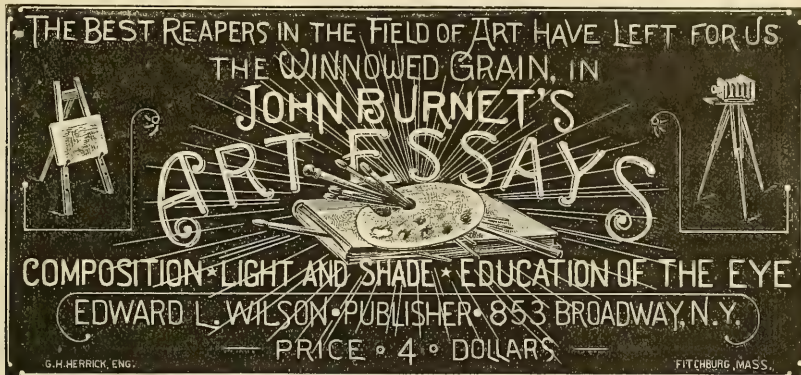
The reproduction of a work of this kind must be a very costly experiment, but its existence only requires to become known to insure a large sale among amateur photographers, most of whom are beginning to understand that a knowledge of art principles is somewhat more important in the production of pictures than exposure tables and developing formulæ. They cannot have a better guide than this book of Burnet's, for not only does it explain matters in a very clear manner, but its precepts are supported by examples from the works of those whose names are writ large on the page of art history.

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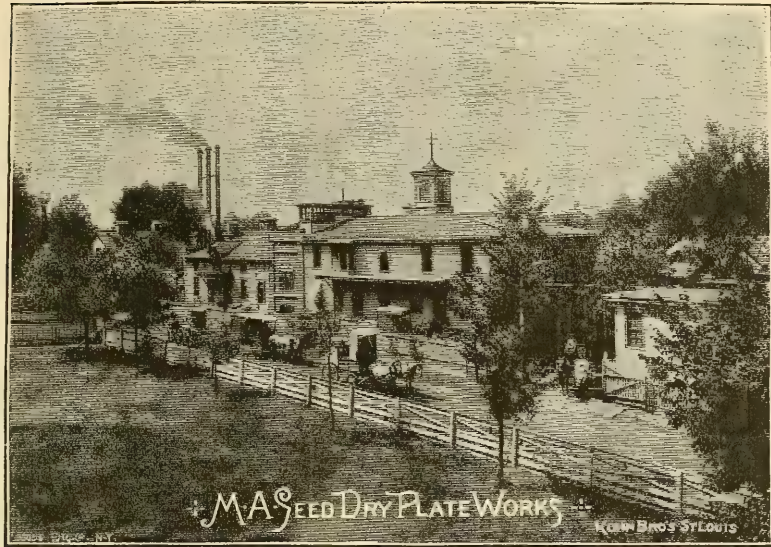
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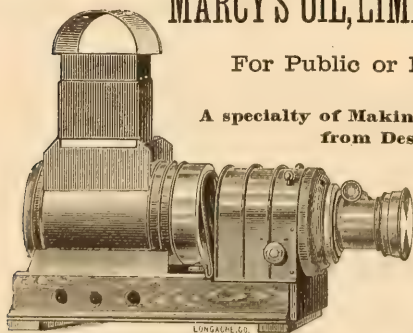
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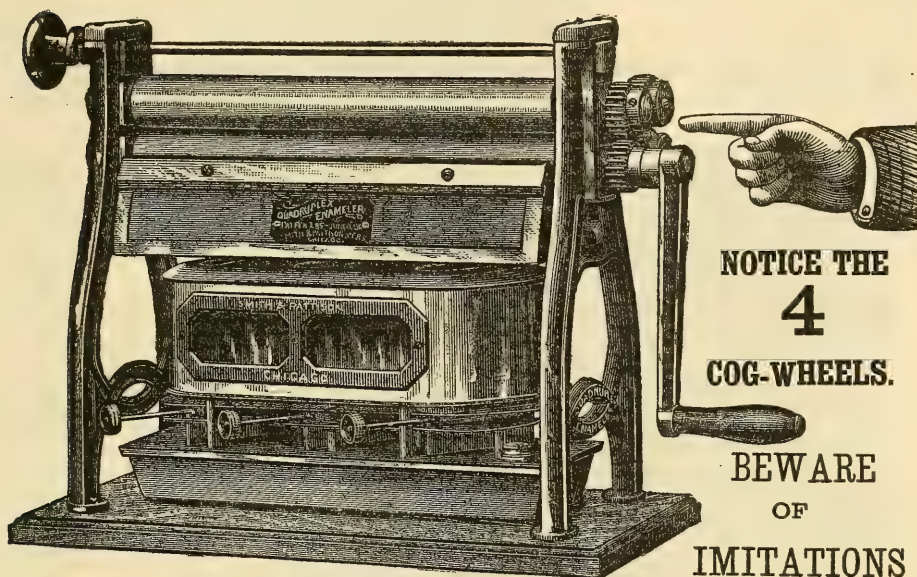
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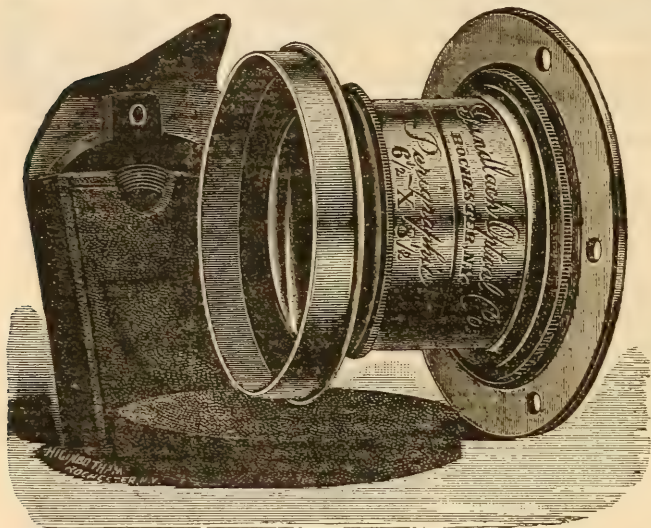
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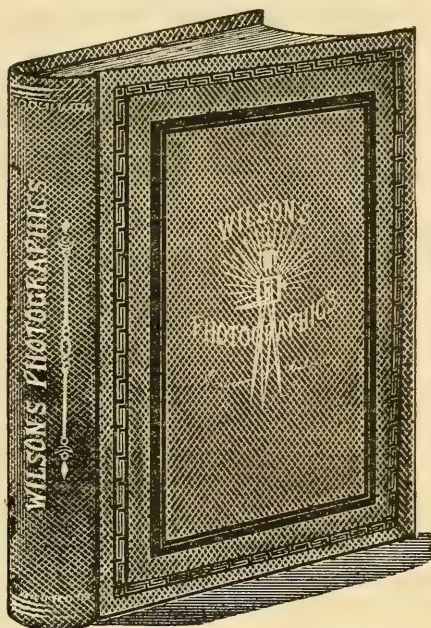
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*A New Summer Annual of Photography.*

# The International Annual

OF

## “Anthony’s Photographic Bulletin.”

EDITED BY

A. H. ELLIOTT, Ph.D., F.C.S., of New York, U. S. A.

W. JEROME HARRISON, F.G.S., Birmingham, England.

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THE Publishers of “ANTHONY’S PHOTOGRAPHIC BULLETIN” have much pleasure in announcing that they intend to issue in July, 1888, a new PHOTOGRAPHIC ANNUAL, which will contain important contributions from the leading Photographers of the Old and the New Worlds.

In the new Annual it is hoped that workers in the two hemispheres will contribute in fairly equal proportions accounts of their apparatus, methods, modes of working, and discoveries. This “International” character of the book will, it is believed, be specially acceptable.

The “INTERNATIONAL ANNUAL” will be published at Midsummer, just when Photographers are most in need of help and of the latest information. All its features have been carefully considered. It will contain a number of illustrations of the highest class—English and American; a careful selection of useful tables and formulæ; numerous editorial articles for “advanced workers”; the “First Principles of Photography” for beginners; lists of Photographic Societies and their officers; a large number of original articles specially written for this book, and several new features which need not yet be specified.

Articles, or promises of articles, have been received from Sir D. Salomons, Bart.; Sir Howard Grubb, F.R.S., Capt. W. de W. Abney, R.E., F.R.S., Prof. Piazzzi Smyth (Astronomer Royal for Scotland); G. M. Whipple, B.Sc. (Superintendent, Kew Observatory); J. Traill Taylor (Editor, *British Journal of Photography*), Chapman Jones, Andrew Pringle, Dr. P. H. Emerson, B. J. Sayce, H. P. Robinson, S. G. B. Wollaston, W. Adcock, George Bankart, C. H. Bothamley, T. C. Hepworth (Editor *The Camera*); R. Keene, The Hon. J. G. P. Vereker, J. A. Forrest, Clement J. Leaper, Henry Sturmer (*The Cyclist*); Greenwood Pim (of Dublin); George Mason (Glasgow); Prof. Steggall (Dublin University); T. R. Dallmeyer, and about eighty of the other leading Photographers of the British Isles. In the United States—John Bartlett, Philadelphia; Henry J. Newton, New York, F. C. Beach, New York, Prof. O. N. Rood, Columbia College; Prof. C. F. Chandler, Columbia College; Prof. Coleman Sellers, Stevens Institute; Fred. E. Ives, Philadelphia; Dr. Piffard, New York; Dr. Maurice N. Miller, Bellevue Hospital, New York; Col. A. C. M. Pennington, Fortress Monroe, Va.; Lieut. H. A. Reed, U. S. Military Academy, West Point; Serg’t. C. E. Von Sothen, U. S. Ex-

periment Station, Whitestone, L. I.; Prof. P. T. Austein, Rutgers College; Dr. L. H. Laudy, Columbia College; Dr. P. H. Dudley, New York; Dr. E. L. Wilson, New York; Prof. Spencer B. Newbury, Cornell University. Dr. H. W. Vogel, Berlin; Victor Schumann, Leipzig; Prof. W. K. Burton, Tokio, Japan; Prof. J. Husnik, Prague; and many others.

This Annual is to fill a place unoccupied by any existing similar publication. The co-operation of one of the ablest photographic workers in Europe has been secured to edit the contributions from the transatlantic contributors.

### W. JEROME HARRISON, F.G.S.,

a name "familiar in our mouths as household words," from his noted contributions to the literature of our science. On this side of the Atlantic the Annual will be in the hands of

### ARTHUR H. ELLIOTT, Ph.D., F.C.S.,

whose well-known editorial work on the **Bulletin** is a sufficient guarantee for a good feast of photographic lore from American contributors. With such a combination of able editors, **tried and not found wanting**, the success of the enterprise is well assured, and the Annual will be as popular, both here and in Europe, as any similar publication now issued. It will embrace a somewhat different field of interest in photography from any other work; will be issued at a different time, and there is no doubt will command the attention of every earnest photographic worker, both professional and amateur.

**Neither time nor money will be spared to make the International Annual worthy of the able Editors and a credit to the Publishers.**

From the above statement it is of course obvious that such a publication is a good place for the advertiser. The circulation will be 10,000, and will be among just such people **as contribute to the welfare of art**; such as professional men, artists, lawyers, physicians, men of science, and indeed all those who are interested in photography either as amateurs or in its application to the arts and sciences.

Judicious advertising is always remunerative, and when associated with such a rich literary repast as will be given in the Annual, will undoubtedly give a good return for the money invested. All those who would like to enter its pages should therefore communicate with us at an early date, that the spaces most desirable may be secured, and the form and style of the advertisements may be in good taste and in harmony with the volume.

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EDITED BY EDWARD L. WILSON.

Vol. XXV.

JUNE 16, 1888.

No. 324.

**THE SECOND ANNUAL EXHIBITION OF PHOTOGRAPHS BY THE AMATEUR SOCIETIES OF PHILADELPHIA, NEW YORK, AND BOSTON.**

THE second annual joint exhibition of the three societies noted above was held under the auspices of the Boston Camera Club, commencing May 7, and ending May 12, 1888, at the gallery of the Boston Art Club, corner of Newbury and Dartmouth Streets, Boston. The weather during the exhibition was not at all favorable, and the lighting of the photographs, with which a great deal of pains had been taken in the proper hanging, was not, during the afternoon hours at least, at all pleasant or very satisfactory. Whatever of this might be due to the weather, or to the skylight of the building, we could not judge, but the weather a large portion of the time was decidedly unfavorable, — one of those peculiar Boston mists or fogs, with considerable rain, and a larger amount of dull than of bright weather, with very little sun during the whole exhibition. The rooms of the Art Club are, however, furnished with electric lights, and when they were in operation the lighting was admirable. This fact was attested by the swarms of people that attended during the evening, who undoubtedly appreciated both the exhibition and the difference in lighting.

The exhibit was large, and was not lacking in quality, something that is hardly ever combined where a great number of

pictures of any kind are brought together, but in this case there was certainly both quantity and quality. A broad objection may, perhaps, be made at the outset to the fact that so many of the amateurs, or those who call themselves amateurs at least, have in this, as in most other exhibitions, availed themselves quite too freely of the services of the professional, whose prints are exhibited, and there is no line of demarcation showing where the amateur stops and the professional begins. In other cases, which were not as large in number as we might wish, all the work done by the exhibitor was decidedly refreshing. Some of the finest work shown was purely and entirely the work of the enthusiastic amateur. The work shown at these exhibitions should be purely, solely, and completely the work of the person who exhibits it.

No apparatus of any kind was exhibited by any of the stockdealers, inventors, manufacturers, or otherwise. It was purely and simply an exhibit of photographs, principally upon albumen silver paper, with now and then an opal or bromide direct print or enlargement, an occasional plain salted paper print, and a single but most admirable exhibit on Aristotype paper.

The prints exhibited covered everything from 14x17 down to  $3\frac{1}{2} \times 4\frac{1}{2}$ , or even smaller than that. Some of the bromide enlargements shown were elegant pieces of work, and in some cases an exhibit consisted of twenty or thirty different pictures on a single mounting in a large frame. One enthusiast with a detective camera showed

five frames with from twelve to twenty photographs in each frame, covering every range of subject. In other cases, however, exhibits were made by one person, and some of them were most admirably exposed, developed, printed, and finished.

The "straining" of a lens to accomplish a picture much beyond its capacity was evident here and there. Yet taken all in all there were very few pieces that were not creditable to the operator. If these exhibitions were held more frequently, and if a class of amateurs, regardless of what society they belong to, or if, as in the case of this exhibition, those who were not members of any society, were encouraged, as the management of the Boston Club believes is right and proper, such exhibitions would do incalculable good to those who certainly find new ways of doing what the professionals have long regarded could only be done in the old rut. While, on the other hand, as in this exhibition, several of the older amateurs who possess most exceptional outfits for amateur work, would stimulate those who could not afford such outfits, as was required by the exhibit made in many cases here, to do better work if less of it, to use more skill or approximate more closely to the "art principles" of photography, rather than to attempt such a great variety of subjects for the sake of making more negatives in number, which, we are sorry to say, in too many cases are quite indifferent in quality.

Some of the exhibits ought to be classed as semi-professional from the fact that work which was shown could never be done by any lens within ordinary reach of the amateur. However, he or she might indulge their preference for this most elegant pastime, recreation, or educational means, as the reader may choose to call it, the amateur can hardly afford a larger size of lens, but is confined to the smaller. We call the attention of all amateurs to the catalogue (which bears the imprint of patience and candor) which was issued at the exhibition.

In the description we find almost all the pictures shown were taken by the Dallmeyer, Ross, Euryscope, Beck, some with the Steinheil, Darlot, and occasionally some other, but these were largely exhibited, showing

that the amateurs are evidently getting down to the fact that only the highest class lenses are capable of doing fine work. It would be impossible in the limits of an article like this to notice every exhibit that had some particular or peculiar merit.

F. M. Sutcliffe, of England, exhibited some thirty pictures, some of which were as completely finished in every respect as any professional work ever seen. Quite a variety of subjects were exhibited, the work all done by the exhibitor, and it was certainly a very creditable showing. J. H. Matthews, of Brooklyn, N. Y., exhibited four pictures, which were all beauties. C. L. Mitchell, M.D., of the Philadelphia Society, had in all twenty pictures, some of which were perfect gems. Some of them were particularly noticeable for detail, and the pains which was taken all through was perfectly apparent in the quality of the work. J. H. Tarbell, of New York, four pictures on Cramer's fast plates that were very nicely finished, all his own work. A flash-light picture by E. R. Schedler, of New York Society, was a novelty in some respects and was finely done. George B. Wood, Philadelphia Society, had a large exhibit. "The Parson's Thanksgiving Turkey," was remarkably well done. The exhibit was noticeable for odd subjects approaching to the comic, in connection with some subjects which were quite artistic enough to attract attention. The exhibitor deserves credit for his patience and care, as well as for doing all the work. Robert S. Redfield, of the Philadelphia Society, made an exhibit which contained six pictures. They were fully up to his usual elegant, careful work. They were second to no pictures in the whole exhibit. Z. T. Benson, New York Society, had some very creditable work. William Garrison Reid, of the Boston Camera Club, had three pictures, strictly his own work, which were bromides, and ranked equal to any exhibits in the room. J. A. Wells, of the Boston Club, showed two pictures, both bromides, his own work, that were really fine. Miss Catherine Barnes, of Albany, N. Y., had about twenty pictures, strictly her own work, all on the Stanley plate, using the Dallmeyer, Ross, Euryscope, and Morrison lenses. Some of these were in-

teriors and were exquisitely fine in detail, both of development and printing. The lady deserves creditable mention for one of the most pleasing exhibits in the whole collection. Edmund Sterling, of the Philadelphia Society, showed some beautiful pictures, all his own work, with a Beck lens on Carbutt's and Cramer's plates Platinotype prints. J. C. Lee, Boston Club, showed some fine work, principally foreign subjects on foreign plates, handsomely printed in albumen silver. Walter Jenney, of the Boston Club, had three exhibits, two of them being simple subjects by himself, which were well worthy of careful examination. Another exhibit was made by the same party in which the printing was not done by himself. George J. Smith, of Vermont, had quite a number of pictures, a part of which were entirely his own work. These last were upon Cramer, Carbutt, and Stanley plates, and embraced some subjects of particular interest. All were well done. Miss Emma Farnsworth, of Albany, N. Y., made three exhibits entirely her own work, all with a Waterbury lens, on the Seed and Carbutt plates, bromide enlargements; all were very prettily finished. The Harvard Photo-chloride Paper Co., of Cambridge, Mass., exhibited two frames of direct prints on their paper, made with the Eury-scope lens, and on Cramer and Carbutt plates. The prints were certainly of a high character, and whatever the capacity of the paper may be, as shown by the makers, it is capable of exquisite detail. E. S. Philbrick, Boston Camera Club, had some pictures of particular interest, all with the Dallmeyer lens on the Allen & Rowell plate. They were bromide enlargements with one exception, that being an Eastman's transferotype. All the work showed care as well as ability. R. L. P. Mason, of the Providence, R. I., Club, had a single frame with some really beautiful pictures; Eury-scope lens, Stanley and Seed plates, albumen silver, all his own work. C. A. Robbins, Boston Camera Club, had an exhibit containing quite a number of pictures largely from New Brunswick, showing very fine work. E. Leaming, of the New York Society, had five pictures with the Dallmeyer wide angle, and the Platinoscope; Cramer

40, and Seed 23; plain salted paper, with one exception. The work was magnificently done. He also had one exhibit of a quarter plate enlarged on Japanese parchment. All done by the exhibitor. Other work done by the same exhibitor covered a variety of subjects. To say that it was entirely well done covers the whole ground. D. M. Little, Boston Society, five pictures, bromide prints, three from the yacht races. Work all by the exhibitor; beautifully done. J. A. Frizzell, Boston Camera Club, quite a collection of pictures, and all taken with the Eury-scope lens, using Ripley, Harvard, and Eagle plates, silver prints, all by the exhibitor. John Bartlett, of Philadelphia Society, showed eight instantaneous pictures made at night, without any retouching, Ross rapid symmetrical lens, Cramer plates, silver prints. These were particularly noticed and remarked upon, and were certainly excellent in all technical details. J. P. Gibson, England, six pictures, Dallmeyer wide angle lens, Ilford plate, silver prints, which were all of a high standard of excellence in every particular and detail. F. C. Beach, New York Society, had two exhibits, each composed of several subjects. Part of these were made on the Vergara film; the others upon Cramer plates, all with Ross lens. A part was printed on silvered paper, and others by contact on the Vergara films. The work was well done and the details particularly noticeable. G. M. Allen, New York Society, a number of pictures, some of which were exquisitely full of detail, all finely finished, work entirely by the exhibitor. He used the Ross rapid symmetrical in all but two pictures, and they were by Morrison wide angle, all Carbutt's plates, silver prints. David Williams, New York Society, four pictures; Dallmeyer rapid rectilinear, Carbutt plates; all on opal glass. These were among the finest work shown. L. P. Atkinson, New York Society, five pictures, Dallmeyer lens, Stanley plate, all on bromide, very finely finished. Miss H. S. Woodruff, Brooklyn, N. Y., two exhibits, Carbutt plates, one upon leathered paper, and one upon bromide paper. Subjects were well chosen and work excellently done. R. R. Andrews, Boston Camera Club, four exhibits, some splendid

views from Maine, some portraits, and other subjects, all by Euryscope lens on St. Louis plates; all silver prints but two, those were platinum. Work entirely by exhibitor, and very much to his credit. Mrs. William Cowper, Florence, Italy, two exhibits, having twelve pictures in all, on Liesegang's Aristotype paper; work all by the exhibitor. If the lady in question is an amateur, she has certainly made progress to a very high point. Some of these, and they were all portraits, were simply works of art, elegantly done, technique and execution being in harmony. They were noticed and noticeable.

Owing to limited space, we have noticed thus far only those exhibits where the work was in its entirety by the exhibitor. Other very creditable work was shown in which the catalogue states distinctly "not by exhibitor."

A single exhibit of eight photo-micrographs made at night was all shown in that line. They illustrated the development of the teeth.

Lantern slides were exhibited by R. S. Redfield, Philadelphia Society; Miss A. L. Richards, of Boston; William Garrison Reid, of the Boston Camera Club; V. E. Forbes, Rochester, N. Y.; R. L. P. Mason, Providence Camera Club; Henry N. Sweet, Boston Camera Club; O. A. Eames, Boston; Daniel Miller, Baltimore Society; H. A. Latimer, Boston Society; E. F. C. Davis, Philadelphia Society; and Geo. M. Allen, of the New York Society. These covered a great variety of subjects, and, as a rule, were very finely done. The plates used by the different exhibitors were Carbutt, Eastman, Forbes, Allen & Rowell, and Ripley. Transparencies were shown by Miss Richards, of Boston; S. Fisher Corlies, of Philadelphia; H. A. Rowland, of the New York Society; E. S. Philbrick, Boston; G. M. Allen, New York Society; and Miss H. S. Woodruff, Brooklyn, N. Y. Carbutt's plates except in one instance, Eastman's transferotype being the exception. The transparencies were principally developed with ferrous-oxalate developer, the exception being hydroquinone. This exhibit, while limited, was certainly of a high character.

Taking the exhibit from beginning to end

it was a credit to the producers. Certainly those who had the exhibit in charge exercised very good judgment in hanging them, as well as in distribution of the subjects. The exhibition should result in encouraging those who have never exhibited, to better efforts, and stimulate a love for this beautiful pastime. If it does it will be as agreeable in the next exhibition, wherever it may be, as we trust this has been, both as a matter of gratification and profit, by contact one with the other. Judging from what has been done it is likely to accomplish all this.

The following is the list of awards:

The Board of Judges, Messrs. J. Eastman Chase, J. Foxcroft Cole, John Dunmore, Joseph R. DeCamp, and Frank Russell, awarded fourteen diplomas, as follows:

Landscapes over  $6\frac{1}{2} \times 8\frac{1}{2}$ , No. 157, Nor-augsfigord, Norway, by Prof. H. A. Rowland, Baltimore, Md. (New York Society).

Landscapes  $6\frac{1}{2} \times 8\frac{1}{2}$  and under, Nos. 290-294, English views, by John P. Gibson, Hexham, Eng. (Newcastle Society).

Marine views—Surf. No. 235, g, Marblehead, Mass. Mr. H. A. Latimer (Boston Club).

Marine views—Sail. Nos. 1 and 3, F. M. Sutcliffe, Whitby, Yorkshire, Eng.

Figure Compositions over  $6\frac{1}{2} \times 8\frac{1}{2}$ .

Figure Compositions  $6\frac{1}{2} \times 8\frac{1}{2}$  and under, George B. Wood, No. 49, "Day Before Christmas."

Animals, George B. Wood, Philadelphia Society, No. 41, "Driving Sheep," and F. M. Sutcliffe, No. 3, g, h, and i, "Geese" and "Sheep."

Interiors. No. 93, I, House on Beacon Street, Miss A. L. Richards.

Instantaneous Effects. No. 231, David Pepper (Philadelphia Society); Jumpers, Hurdle Races, etc.

Transparencies. No. 7, Near Oje, Norway. No. 8, Wave on Cranberry Island, Maine. Prof. H. A. Rowland.

Set of Six Lantern-slides. No. 14, H. A. Latimer (Boston Club).

Set of Six to Twelve Pictures, by foreign exhibitor, or taken in a foreign country. John C. Lee (Boston Club).

No. 173. Thirteen Pictures taken in a foreign country.

Pictures by New Process. Henry Harrison Suplee (Philadelphia Society).

No. 104. "Ready for the Dance." Magnesium Flash-light.

Micro-photographs. No. 1, eight micro-photographs.

## A FEW HINTS ON LANTERN SLIDES.

BY A. R. DRESSER.

"If a person has a 'hobby,' let it be one that is of use to the public in general, as well as to himself."

Now to those who follow photographing for pleasure: They cannot find any part of that art of more interest and use than the making of lantern slides, and I will try to show that by so doing they will both derive great pleasure themselves and give pleasure to their friends and the public in general. It is not everyone who is able to go about the world, and so those who do should try and give their experience to others, and if they work a camera they will be able to do so. Of course, it is possible to do so by showing prints from the negatives you take while travelling, but then only one can look at them at a time, and then however well done they never are as good as a lantern slide. And, besides, by making slides and using a lantern you can show to any number of people at once, and at the present day lantern showing has come to the fore so much that the apparatus for showing slides is both easy and cheap to get.

And not only are you able to give pleasure to yourself and friends, but you can do a very great amount of good to the poor class, and instruct them at the same time. The poor, as a rule (in particular the children), are not able to go and see life, and all they learn is by attending boarding school. As far as I can see, they learn very little there except to read and write, and those who do get instructions in geography or natural history find it very dull work; and I am sure they will learn more in one night from a good lantern show than a month at school. For instance, last winter I was at the seaside at a small town, and had, as

usual, carried my lantern and screens and a lot of slides, amongst which were fifty of animals I had taken at the Zoo, besides a lot of American, Canada, and European views. I one day went to the schools and found the children well crammed, but knew nothing much really, so I said I would give a lot of lantern shows to them, and gave ten or twelve in all. I found that not only did I give pleasure, but instruction as well, as when I gave my last show, all the children knew the animals as they appeared on the screen and where they came from, and the same with respect to the views in America, Canada, or France; and not only did they learn their lessons well, but when I came along all their little faces brightened up and they would say, "Please, Sir, when shall we have another show?" Now this shows the pleasure and instruction one can give to the poor, and that at a very little cost; and hence I say make your hobby of use to others. So much for my sermon, but I hope many readers of this paper will take a hint and do good for the "poor little children."

I say the expense is little, as my lantern and screen, and they are the best I can procure, cost only \$35; the light less than 60 cents a night, and with oil about 20 cents; and slides, when made by myself from my own negatives, about 6 cents to 7 cents, and that allows for a bad one now and then; but, as a rule, I get ten slides from twelve plates, as I use only one make of plate, and that I can depend upon.

To those readers who know nothing about a magic lantern, I advise them to buy the best oil lamp they can get, and if they go to a really good firm they are sure to be well served; it is the small and cheap shops that sell the bad goods, and, as a rule, if you go to the best place and give a good price, you will find it pays in the end. I do not advise the use of oxygen and hydrogen gas except those who know well how to use it. I use all kinds of lights, gas, oil, and electric light, but for schools and shows in general I use oil, as it gives a very good nine or ten foot picture, is cheap, and above all, safe, as by using what they call "the great American invention," it is impossible to have an accident. I seldom puff up any one's goods, but I will say that it is what all

who use oil lamps should put in them, as I have burst an oil lamp filled with paraffin, and it would not even light when on the floor. In this country it is sold by Lynch & Co., 20 Great College Street, but I do not know the agent in America.

As a rule, I think that a very large screen is a fault, as few slides will bear enlarging up to 20 feet. I think 8 to 10 feet the right size to show on the screen.

Now as to making slides, they will have to be made either by contact or through the camera, but, as far as my experience goes, by far the best results are got by taking them through the camera; and I seldom see one taken by contact equal to one taken the other way, each taken from same negative. If you take by contact you must have negatives the same size as the slide, or else take small pieces out of a large negative; but, as a rule, it does not do to take pieces out of a large negative, as a negative is taken to represent a certain view, and if you cut it up into parts you do not get what you require; and, I think, that making lantern slides by contact should not be done if it is possible to do so by copying through the camera. The great advantages of copying through the camera are that you are able to take a slide from any sized negative and get it just the size required on your slide; you are able, too, to double print your skies in.

No slide looks good with plain white or clear glass for your sky part, but all should have sky printed in. This can be done with certainty with a little care, and the results you get are better than if taken by contact.

For copying negatives to make lantern slides through the camera, you require a window that faces north or northwest, and if the window faces the sky (if without any houses or trees between the window and the sky so much the better) then you will require no screen; but if any objects are between your window and the sky you will require a screen of tin painted white or a large looking-glass at an angle of forty-five degrees to reflect the light from the sky into your ground glass. I prefer tin painted white, as a large looking-glass will reflect the heavy dark clouds at times and make the light uneven. The glass in the window

(that is, the part you use) requires to be ground glass, to diffuse the light and to keep out any objects reflected from your screen. You will then require a carrier for holding your negatives; one same kind as you use for a dark slide will do—that is, say, 8 x 10, with holders for all sizes down; and then you will be ready for any sized negative. Next you require a camera to put your glass in you are going to make your slide upon. You have only then to proceed the same as if you were taking a negative; it is only necessary to have the size of the mask marked on your ground glass so as to register exactly with your plate and then focus your negative to size required and expose. If you want to print in clouds you will have to take a sky negative the same size as the negative you copy from. Then place your negative down on a piece of paper, *film down*; on that place your sky negative *film down* also, and mark with paint where your landscape reaches the sky. Now focus your negative as usual, but mind and register it in one corner exactly; after doing so put in your dark slide (filled ready) take out landscape negative and place in sky negative (*both with film toward the lens and sky part downward*), draw out your slide and expose. While exposing take a piece of cardboard and vignette on the line you have marked on your sky negative. Of course, when vignetting you vignette so as not to expose *the part where the landscape has to come*. After doing so a certain time, you cap your lens and take out the sky negative and put in the view negative, being careful to register in same corner exactly; and now you will vignette the view part, same way as you had done the sky part, until your exposure is done, and if all is right you will have a good slide with sky printed in.

Of course, it has to be practised well before one is perfect, and the exposure of sky with view negative must be learned, but if one uses same sky negative he will soon learn what exposure each requires; but, as a rule, I find that one to five is right—that is, if your view requires fifty seconds exposure, the sky will require ten seconds; but that can only be learned by experience; it is best to always take care the sky is light, as

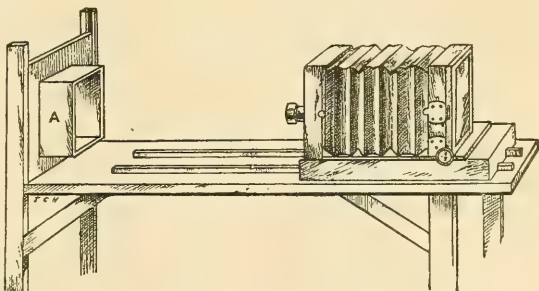
a very heavy set of clouds will spoil your slide.

Below is a drawing of the camera and stand I use, from the *Mosaics* of 1887, p. 134, which I find does very well, and advise those who intend making a stand for so doing to copy it. Always mind and keep out the light between the *lens* and the *negative* you are copying. Almost any camera will do, unless you copy small negatives with a long focus lens, and then you would require a very long focussed camera. As to lens, any good one will do. I use all sorts, portrait, rapid rectilinear, and wide angle, and find little difference, but I prefer a wide angle lens, as you are sure to get sharper results. If stopped down the image will be sharp even if your plates vary very much in thickness. I cannot say what plates are best to use, as I do not know American makes of plates, but if Fry's lantern plates are for sale in New York they are about the best lantern plate I know, and the one I always use and from which I get results as good as I could wish;\* but any way use as slow a plate as you can get for good results, not that I mean one that will take a week to expose, but one fairly slow, registering 8 to 10, is best for lantern work; or else use Eastman's transferotype paper, which gives as good results as any plate, but is a little more trouble.

I now always develop slides with hydrokinone, and have given up all other developers for it, as I find I get better results and more certain in every way. Any formula of hydrokinone will do except one with ammonia in it, and I find that when using hydrokinone and ammonia you are apt to get fog, but not when using soda. I prefer to overdevelop my slides (that is, a little) and then clear them, as by so doing I get out all detail and still have clear glass. When doing that way I make my slide several shades darker than I require it and then clear it (in daylight), and by so doing get just the density I require. The solution

I use for clearing is: Saturated solution of hypo 1 part, water 3 parts, to every ounce of which I add 5 or 6 drops of a saturated solution of ferricyanide of potassium, and leave it in until it reduces to what I want or nearly so. To stop the reducing at once, place for a minute in alum and then well wash. Another good plan to get good colors from brown to black, is to rather underdevelop and, after your slide is *well washed*, bleach it with mercury (as usual with negatives), well wash again, and then develop with weak hydrokinone; the image will first appear red, then brown, and on until it gets a rich black. You can take it out and stop, by washing, at any stage.

The mounting of your slides is something that you can do or get done, as it is only a matter of work and time, and requires no art



except in choosing your mounts. I think mounts should be longer than wide, so as to take in all of your negative, and it is not possible to do so when using mounts as usually made, viz., 3 x 3, or in  $2\frac{7}{8} \times 2\frac{7}{8}$ , from a negative that is  $8\frac{1}{2} \times 6\frac{1}{2}$  or  $6\frac{1}{2} \times 4\frac{3}{4}$ ; and why not have your mounts made to correspond? I do. But whatever mount you use do not use the round one, as the only beauty it has is its ugliness, like a Scotch terrier.

Many readers may think it hard to make slides, but it is not so. With a little practice they will be able to get better and surer results than if they were printed on paper, as a thin negative that will not print on silvered paper will give good results on a slide. It only wants a little care and brains to make good lantern slides, and I feel sure those who go in for lantern work will find they get more pleasing results than by printing on paper; so much so

\* Mr. Carbutt's transparency plates are the best in this country.—Ed. P. P.

that I now show all the results of my day's outings that way and make far more slides than I do prints.

### WANTED—A REMEDY.

BY O. S. MORTON.

A FASCINATING thing to its votaries is photography! Yet what a struggle do many of these votaries have before mastering its mysteries. What is photography anyway? How shall we classify it? A professional on one occasion, after enumerating the various snares and pitfalls that had entrapped his unwary, photographic feet, added, "Oh, I tell you, it's a *trade*." Perhaps if this proposition were put to the vote it might be buried under the negatives of those who hold that it is a science or an art. If it be a science, then (taking the root meaning of the word) it is something about which we *know*. Now an astronomer will foretell to a minute when an eclipse will take place; and with such absolute correctness have former predictions been verified that without a question we prepare our smoked glasses and await the event. Yes, astronomy is a science. Can the same, as yet, be affirmed of photography? If it be an art, who will specify the "system of rules" (see Webster) by which it is practised? "Expose for the shadows and let the lights take care of themselves" (if they will) may do for a beginning, but what shall we have to complete the code? Methods are recommended *ad infinitum*, but there comes in the trouble. Mr. A. suggests formula No. 1, Mr. B. No. 2, and so on through the alphabet. Now it would seem that one or other of these formulæ ought to be better than the rest, but which one has never been ascertained or reduced to "rule," and the beginner is at liberty to experiment through the "alphabet" in search of it. Life is too short and valuable for much of it to be spent in this way, however, and it would be a saving of time and expense to the beginner if, in his dilemma, he could find that unanimity of opinion among experts that would enable him to pursue the course commended in an article in a late number of the PHILADELPHIA PHOTOGRAPHER—*i. e.*, that of beginners

availing themselves of the experience of others instead of trying to "work it out" for themselves.

This diversity of opinion seems to extend to every department of science (?), and in some cases opinions and experiences seem to be in direct conflict. To illustrate, I use the interesting article from the pen of Mr. Pray in the April number of the PHILADELPHIA PHOTOGRAPHER. He says that pyro cannot be kept in solution for any considerable length of time, and that to try to do so is to attempt the impossible. And yet Mr. Carbutt or Mr. Walmsley, and perhaps others, would probably say that it is quite practicable and would point to their straw-colored solutions of six months, or perhaps a year's standing, as evidence.

Again, he says, that it is impossible to construct a lens that will, at once, define well and rapidly. Perhaps he may mean under ordinary circumstances, and yet I saw this spring a print from a negative exposed at five o'clock in the afternoon. It was a snap shot, a rectilinear lens, and next to the smallest stop was used. The subject was an old brick dwelling, in front of which was a body of water. The definition of the building is microscopic in sharpness, and the rapidity of exposure is attested by a trotting team, which, with the exception of the horses' legs, was caught without blur; and also by the ripples in the water being preserved in form.

Then as to the relative merits of the different makes of lenses. Not long since I made inquiries of some veteran workers with reference to lenses. They all very kindly gave replies, which, for the most part, were very definite and to the point. But, alas! there was no unanimity. One recommended lens A, another lens B, another C, and as still another recommended the latter (C), I tested it with the one I had, yet saw but little difference between them.

So, too, with reference to developers. A year or more ago a gentleman, whose work has borne off several prizes both in this country, and, I think, abroad, wrote me that on a recent trip he had made a large number of exposures, and that, if I remember correctly, all but two of them turned

out failures. These two were developed with pyro, the rest with ferrous oxalate. To a beginner such an experience would, perhaps, seem conclusive as to the demerits of the latter developer, and he would probably be surprised to see that in last year's annual, Mr. Cooper champions the iron developer, so far as to say that it is in every respect equal to the alkaline pyro.

If experiences and opinions differ so do theory and fact. Not very long since I read an article from an expert in which he argued that a lens could have no such quality as depth of focus. That only one plane could be in focus at a time, all else being of necessity out of focus. Theoretically, he may have been correct. Practically, put in a small stop and what is the *fact*? Or if the stop be excluded by reason of its cutting off marginal rays, I would say that last November I made a shot from the deck of the "Wyanoke" with a Beck lens, full opening, and objects from the bow of the steamer to perhaps fifteen feet in rear of its stem are sharply caught, and the "plane" in this case is practically some fifteen feet thick.

Speaking of small stops, some writers say that they ought not to be used as the resulting pictures would be flat and map-like. Do facts sustain this position? Certainly, the custom hereabouts is to use them. Again, one writer will urge the use of the slowest plates that circumstances will permit. Another will pronounce such a view heretical. Of course, there will always be more or less difference of opinion. Absolute uniformity, either of opinion or practice, is perhaps neither possible or desirable, but cannot something be done to bring a measure of order or system out of the confusion? Until there is "reform" we must continue to ask and answer questions, being pleased to give and grateful to receive whatever information we may. But how is the matter to be remedied? Ah, I leave that to wiser heads, only adding that, as in some places, local societies may have, by actual test and note, settled some of these questions for themselves. Might not the large and influential P. A. of A. do likewise, both for the credit of photography, itself, and *pro bono publico*?

WALLACE GOOLD LEVISON

ON

## THE DURATION OF INSTANTANEOUS EXPOSURES.\*

NEW YORK, Feb. 25, 1888.

DEAR SIR: In response to your request for a shutter which is largely used and relied upon, to test by your new method, I herewith send you two Prosch shutters which are, perhaps, as popular as any in the market. One is the Duplex (Triple improved), and the other the rapid instantaneous, reputed to give an exposure of  $\frac{1}{800}$  of a second, both being of regular make and stock. If you will kindly determine by your latest method just what these shutters are capable of performing, as to their relative speed, etc., and have the report published in the various photographic journals, you will confer a great favor upon those interested in shutters and their use.

Yours truly, A. D. FISK.

To Mr. W. GOOLD LEVISON.

In response to the above letter I herewith submit the results of my examination of the shutters to which it refers:

To the Duplex shutter I applied my method with a rotating sensitive plate. The tension of the shutter is adjusted by a lever which engages with either of a series of four hooks. The lowest tension which is frequently employed gives the fatal secondary or double exposure. The higher tensions do not often show this defect, since the spring becomes strong enough to prevent the rebound. The duration of the exposures is  $\frac{1}{44}$   $\frac{1}{60}$   $\frac{1}{77}$  and  $\frac{1}{88}$  of a second.

The speed of the quick shutter was determined by means of "Perron" films glued upon its face. It may be adjusted for five different exposures by means of a lever engaging with a series of five hooks. It is provided with a spring catch designed to prevent its rebound.

The three highest tensions all cause double exposures. In case of the two highest the tension spring again closes the shutter, but

\* Read before the Brooklyn Academy of Photography, May 16, 1888.

in case of the medium speed it is not strong enough always to do this, and the shutter sometimes remains open after the exposures. In case of the lower exposures, the spring catch prevents the rebound.

To complete its excursion the shutter moves through an arc of about 73 degrees.

It is nearly on Circle 2, which passes through the centre of the exposing aperture, that it is first opened and last closed. In allowing for expansion of the films in Table 2 the speed of the shutter is favored as far as possible. To measure the undulations two black lines, form an angle of 73 degrees,

TABLE 1.—ANGULAR VELOCITY OF SHUTTER. TOTAL EXCURSION 73°, RATE OF FORK 331.25 VIBRATIONS PER SECOND.

No. of notch in rack . . . . .	1	2	3	4	5
First circle, number of undulations found . . .	5.25	4	3.25	3	2.75
Second " " " " " . . .	5.25	4	3.25	3	2.75
Time of 73° angular excursion in seconds . . .	$\frac{1}{63}$	$\frac{1}{83}$	$\frac{1}{102}$	$\frac{1}{110}$	$\frac{1}{120}$

Designating the lowest speed as No. 1, and the highest as No. 5, the results afforded by the vibrating beam of light placed at top of lens opening (Circle No. 1) and at middle of lens opening (Circle No. 2) are shown in Table 1, in which the results are independent of the expansion of the films.

are drawn upon paper, and inclose a second pair of lines forming an angle of 65 degrees. The film is so adjusted over these lines that the record is just included within the larger angle, and the vibrations taken are those inclosed by the smaller angle.

In the next table is given the time of ex-

TABLE 2.—DURATION OF EXPOSURES. ANGULAR TRANSIT OF SHUTTER FROM BEGINNING TO END OF EXPOSURE 65 DEGREES.

No. of notch in rack . . . . .	1	2	3	4	5
No. of undulations found . . . . .	4	3.12	2.5	2.1	1.8
Time in seconds . . . . .	$\frac{1}{83}$	$\frac{1}{106}$	$\frac{1}{132}$	$\frac{1}{157}$	$\frac{1}{184}$

TABLE 3.—TIME OF EXPOSURE OF SUCCESSIVE THIRDS IN COMMON AND DECIMAL FRACTIONS OF A SECOND.

Circle 2.	First Third.		Middle Third.		Last Third.		Total in decimals.		
	Vib.	Time.	Vib.	Time.	Vib.	Time.			
Speed 1.	1.3	$\left\{ \begin{array}{c} 1 \\ 255 \\ .003921 \end{array} \right.$	1.2	$\left\{ \begin{array}{c} 1 \\ 276 \\ .003623 \end{array} \right.$	1.1	$\left\{ \begin{array}{c} 1 \\ 301 \\ .003322 \end{array} \right.$	.010866		
		Total from Table 2 .					.012050		
Speed 2.	1.2	$\left\{ \begin{array}{c} 1 \\ 280 \\ .003572 \end{array} \right.$	1.0	$\left\{ \begin{array}{c} 1 \\ 331 \\ .003021 \end{array} \right.$	.70	$\left\{ \begin{array}{c} 1 \\ 473 \\ .002114 \end{array} \right.$	.008707		
		Total from Table 2 .					.009400		
Speed 3.	.9	$\left\{ \begin{array}{c} 1 \\ 368 \\ .002716 \end{array} \right.$	.65	$\left\{ \begin{array}{c} 1 \\ 509 \\ .001962 \end{array} \right.$	.50	$\left\{ \begin{array}{c} 1 \\ 662 \\ .001510 \end{array} \right.$	.006188		
		Total from Table 2 .					.007500		
Speed 4.	.8	$\left\{ \begin{array}{c} 1 \\ 414 \\ .002415 \end{array} \right.$	.6	$\left\{ \begin{array}{c} 1 \\ 550 \\ .001818 \end{array} \right.$	.45	$\left\{ \begin{array}{c} 1 \\ 736 \\ .001358 \end{array} \right.$	.005600		
		Total from Table 2 .					.006370		
Speed 5.	.6	$\left\{ \begin{array}{c} 1 \\ 500 \\ .001818 \end{array} \right.$	.5	$\left\{ \begin{array}{c} 1 \\ 662 \\ .001510 \end{array} \right.$	.4	$\left\{ \begin{array}{c} 1 \\ 828 \\ .001207 \end{array} \right.$	.004535		
		Total from Table 2 .					.005435		

posure in successive sections corresponding to the width of the slot on Circle 2 at the first, middle, and last period of exposure obtained by calculation from the number of undulations found in the width of the slot by superposing the films over a plan of the shutter. The width of the slot in the Table is designated as one-third of the exposing aperture, but it is actually somewhat greater than one-third, and hence the total of the three determinations should be somewhat lower than the total time of exposure given in Table 2. Moreover, in these determinations personal equation is involved in measuring the small fractions of undulation obtained with a fork of so low a rate and allowing for the expansion of the films. Hence they must be regarded only as provisional until more accurate results are obtained with a fork of higher rate.

A determination by the revolving plate method of the time of passage of the slot over its own width the highest speed on Circle 2 gave vib.  $.50 = \frac{1}{662}$  of a second for the last third. A secondary exposure containing 1.75 vibration occurs in this case. This added to the .5 vibration of the primary exposure gives 2.25 vibrations =  $\frac{1}{147}$  of a second as the real exposure at the high speed for the last third of the exposure. Or by adding 1.75 vibrations to those found for speed .5, Table 2, we obtain 3.55 vibrations, which give  $\frac{1}{93}$  of a second as the actual total exposure which is really given by this speed. The consequence is, that a picture which has been taken with either the lowest or highest speed of this particular shutter has had nearly the same exposure. No perceptible translation of objects in moderating quick motion would occur between the primary and secondary exposure, because the interval is only about  $\frac{1}{331}$  of a second, but during the total interval embracing both exposures and the interval between them, which altogether amounts to  $\frac{1}{69}$  of a second, even an object moving slowly would afford an indistinct picture unless at a very great distance.

TABLE 4.—TIME OF PASSAGE OF SLOT OVER ITS OWN WIDTH ON CIRCLE 1 (AT TOP OF EXPOSING APERTURE) FOR THE MIDDLE OF EXPOSURE ONLY.

		Middle Third.	
		Vib.	Time.
Speed 1		1.5	$\frac{1}{221}$
			$\frac{1}{265}$
" 2		1.25	$\frac{1}{442}$
			$\frac{1}{550}$
" 3		.75	$\frac{1}{662}$
" 4		.60	
" 5		.50	

## HOW IS THE NEGATIVE MADE?

BY THOMAS PRAY, JR.

(CHEMISTRY OF THE PLATE.)

THIS is *one* of the questions asked by an evidently new reader of the PHILADELPHIA PHOTOGRAPHER; and the further inquiry or request comes to "make it plain," so other novices in the "delightful pastime shall understand without wading through some volumes of chemistry."

To treat a scientific matter plainly depends upon who we are to talk to, or write for: if for a chemist, he wants all the symbols, changes, combinations; if for a "novice" he or she wants an outline of one of the most interesting of chemical actions and reactions, put into "plain language"—this is not easy to do in a few lines—and convey any real idea of all that is necessary to an understanding of the case. Silver is the base of all photographic work; and chemically is one of the noble metals. Its symbol is Ag, and its atomic weight 108. Its most important *salt* is silver nitrate, chemically known as  $\text{N.O}_2\text{OAg}$ ; made by dissolving silver in its metallic form as nearly pure as possible to get it, in nitric acid, and then evaporating by gentle heat the acid solution, crystals are left, in form, *rhombic plates*, which are nearly colorless (as rock salt), and these crystals are soluble in water to such an extent that one ounce of nitrate of silver will dissolve in eight-tenths of an ounce of distilled water. If this acid solution is evaporated at a higher heat—and the heat raised gradually—the product would be *lunar caustic*, such as surgeons use for

*cauterizing* or burning out fungus growths as *proud flesh*, clearing the edges of *ulcers*, old sores, etc., and this same lunar caustic is the basis of some of the many "marking inks"—but to return to nitrate of silver—this salt has many uses in the arts and industries, but in a photographic way it is brought into close chemical union with bromine and iodine, and is, when chemically married, spoken of as iodide or bromide of silver, and under the new association, it becomes one of the halogen compounds of silver. This term means practically, sensitive to light; literally, "surrounded by a halo" (see Webster); and bromide of silver is the especial halogen compound which so largely enters into the dry plate that so much perplexes our amateur friends. Chloride is another one of the same family, but not quite so tractable and not so much used.

Silver chloride is  $\text{AgCl}$ ; silver bromide is  $\text{AgBr}$ ; silver iodide  $\text{AgI}$ ; there are some curious and interesting facts connected with these three compounds, but we must omit them as irrelevant. The platemaker takes silver nitrate, bromine in form of bromide, and perhaps iodide of potassium, and gelatine and water with some other chemicals, and by cold or cooked emulsion mixes all these chemicals into the light yellow covering on one (and many times too much) or both sides of the dry plate. All these operations, after the articles are mixed together by the platemaker, must be conducted in a non-actinic light, red, yellow, or green combined with red or yellow, for the emulsion is sensitive to light before as after it is put on the glass, and must henceforth be kept away from white or actinic light in order to be available when exposed in the camera.

The speed of the plate, as 12 to 16 to 20 to 30, etc., is all governed relatively by the way in which these emulsions are mixed, and the proportions used, as well as the cooking and keeping, etc., so that chemically considered a fast or a slow plate contains  $\text{AgBr}$ , but in greater or less proportion. Up to this point the silver salt is in a state of fine subdivision, and if the platemaker has done his work well, and put on a sufficient quantity of emulsion to make the proper coating, there is an even coating of  $\text{AgBr}$  all over

the plate, or just as much in one place as in any other; and it is now waiting for exposure to the actinic rays of light, by which other changes are made in the chemistry of the coating on the plate. In the making up of the emulsion it is found that where chlorine is used and potassium or iodide, that silver has a greater affinity for bromine than iodine, and potassium a greater affinity for chlorine than for bromine or iodine; hence, bromide of silver is mainly used when a plate is exposed to the light of the sun or of daylight. The actinic rays produce a chemical change in the hitherto sensitive salts of silver, making sub-salts and an image is impressed upon the plate of whatever was in range of the lens when the exposure was made. This image is not visible as yet, and if the exposed plate be now taken in the dark-room and examined, no difference in appearance will be perceptible in any one part of the plate over any other part. It now remains to perform other chemical processes and to produce chemical action and reaction.

The exposed plate is now put into a developing bath, according to the skill or fancy of the operator. Chemically, this bath is a reducing agent, and the salts of silver before spoken of, are, by contact with pyrogallol and alkali, as soda, potash, etc., reduced to black metallic silver; what is white or light in the view becomes black on the (no longer plate) negative, and the shaded places and dark colors of the view are white or light, and by these contrasts we can see on the negative, reversed in position and color, just what we saw on the ground glass in focussing for the exposure. But if the partly finished negative should now be taken into the light, it would be valueless for printing purposes, because there is still more or less white bromide of silver not acted on by the light, and, consequently, not reduced by the developer; this is undeveloped bromide or iodide, as the case may be, and it must be taken out all clear and clean, as it would blacken and make worthless the negative if it were left in. This requires still another lot of chemistry, and it was many years before so simple an operation was successfully performed after photography was known. The fixing or fixa-

tion follows. The negative after reducing or development is washed well and then put into a bath of sodium hyposulphite, or hyposulphite of soda, and is left there until all the white bromide is dissolved out and the negative, when held up to the light, has on it only and exactly what we want to make a silver, or contact, print from.

These operations are all beautiful when we understand them, and any one with a love for photography is always glad to stand over the developing tray as much as at camera.

Now skill, patience, and care are required in all these operations; for if the plate-maker gives us an honest plate, and we expose it too long or too short, the chemical change is in proportion, and we must be under chemical disadvantages in our chemical reduction and fixation if we blunder along with exposure, or if we do not bring the proper reducing agent (developer) to the plate and at the right time. But if we do all correctly, who that has any experience, but that they will say the development and fixing are as interesting, as pleasant, and as profitable as any other part of the amateur's work, even if done at the end of a day's labor.

To the student of physics there are other topics in direct connection of equal value, interest, profit. We can, if desirable, study the spectra of the plate and the effect of the rays from either end of the spectrum—science has determined that the *invisible* rays of the spectrum have the most powerful action on AgBr, and the value of all the color rays are given; curious the reader may say or think, that we *prove* the most powerful of all the rays are those we cannot see. It is a fact, and all the more interesting because it is true.

## THE LENS IN FLASH-LIGHT PHOTOGRAPHY.

BY WILLIAM T. GREGG.

MANY, doubtless, when they see the blinding light of the flash powder, wonder why the impression made on the sensitive plate is so slight, when in comparison to the same time of exposure to sunlight the plate would be overexposed; thinking the plate, the

powder, the developer, or, lastly, themselves, are to blame, when it is their achromatic lens all the time.

In theory and by experiment, I have found that when the lens is corrected for solar photography, by making the glass and balsam of different refracting indices, until the focus of the visual or red ray, and the chemical or blue ray, are brought as near the same point as can be, the lens is said to be corrected. If they could be made exact it would be called a virgin lens, but it never comes so, and so every man must learn where best to focus his lens to get the best results.

In flash-light photography the light is a chemical one, and has not the same qualities as the sunlight; it is rich in chemical violet or ultraviolet rays, and if the lens is only focussed so that they will come sharp on the plate, much better negatives are obtained.

The focus of these rays is on the inner side of the spectrum, or nearer the lens than the visual or red rays that must be used in order to focus; therefore, when the picture is properly focussed to the eye it must be altered in order to get the benefit of the photographic rays.

I have found that the amount of change is different in lenses of different equivalent focus, and also at different distances from the objects, as each effects the length of the ray after passing through the lens.

It will be from one-sixteenth of an inch and upward shorter than the visual focus, according to the distance of the object and the focal length of the lens.

Try a plate focussed as I have said, and let me know your results.

[Translated for the Philadelphia Photographer.]

## THE POSITIVE PRINTING PROCESS UPON ALBUMEN PAPER.

BY DR. E. A. JUST.

(Continued from page 281.)

### PART II.

CONCERNING THE VALUE OF THE ARGENTOMETER FOR THE MANAGEMENT OF THE SILVER-BATH.

As is known, an argentometer result "10" signifies that the silver-bath should contain 10 parts nitrate of silver to 100 parts water.

This explanation is correct; if the solution to be examined contains only nitrate of silver. It is, however, incorrect, if, as is the case in every silver-bath that is used, it contains besides an alkaline nitrate in solution.

The argentometer estimate then means only a number which helps one to reckon the specific gravity; thus, for instance, the argentometer sign "10" corresponds to the specific gravity 1.093. Should a paper salted with chloride of soda be used, then the silver-bath would be, in reality, a solution of nitrate of silver and nitrate of soda.

The argentometer sign "10" can then signify an innumerable quantity of different mixing proportions of both these salts, of which the following are only some:

The argentometer sign "10" can be obtained from the following solutions:

10 per cent. silver salt and 0.0 per cent. nitrate of soda. 9 per cent. silver salt and 1.5 per cent. nitrate of soda. 8 per cent. silver salt and 3.0 per cent. nitrate of soda. 7 per cent. silver salt. and 4.5 per cent. nitrate of soda. 6 per cent. silver salt and 6.0 per cent. nitrate of soda. 5 per cent. silver salt and 7.5 per cent. nitrate of soda. 4 per cent. silver salt and 9.0 per cent. nitrate of soda. 3 per cent. silver salt and 10.4 per cent. nitrate of soda. 2 per cent. silver salt and 11.9 per cent. nitrate of soda. 1 per cent. silver salt and 13.4 per cent. nitrate of soda.

#### PER CENT. QUANTITIES NITROUS SALT.

Argen- tometer.	Spec. grav.	of Silver.	Potash.	Soda.	Ammo.
...	1.009	1.0	1.4	1.5	2.0
...	1.018	2.0	2.9	2.0	4.0
...	1.027	3.0	4.3	4.5	6.0
...	1.036	4.0	5.8	6.0	8.0
20	1.046	5.0	7.2	7.5	10.0
18	1.051	5.55	8.0	8.3	12.7
16	1.058	6.25	9.0	9.4	14.5
15	<b>1.062</b>	6.67	9.5	<b>10.0</b>	15.5
14	1.067	7.14	10.3	10.7	16.5
13	1.073	7.70	11.1	11.6	18.2
12	1.078	8.33	12.0	12.6	19.5
11	1.085	9.10	12.9	13.8	21.0
10	<b>1.093</b>	<b>10.00</b>	14.0	15.0	24.0
9	1.103	11.10	15.4	17.0	27.0
8	1.116	12.58	17.2	19.5	31.0
7	1.133	14.30	19.8	23.0	37.0
<b>6</b>	<b>1.155</b>	16.67	22.7	26.2	44.0
6	1.155	20.00	27.0	31.0	54.0

The preceding table shows the specific gravity and the corresponding per cent. quantities of the nitrates of silver, potash, soda, and ammonia, when these four salts are found in pure solution.

In the mixture of silver-salt solution with nitrate of the alkalies, the specific gravity (since no known value of contraction is proved) is added (*i. e.*, the plus over 1).

Then a silver bath, which, besides 10 per cent. silver salt, contains 10 per cent. nitrate of soda, would give a specific gravity of  $1.093 + 0.062 = 1.155$ , which is the result marked "6" by the argentometer.

Nothing more need be said concerning the usefulness of the argentometer for the management of the silver bath.

The only method that gives really exact results for determining the quantity of silver is by titration; and it is, unfortunately, very seldom used, because so few photographers have made themselves acquainted with it.

But this process, if one will only once try it, is not really so difficult and and so detailed as is generally believed. The following chapter discusses the different methods that are known, in as simple a manner as possible, but in such a way as to insure perfect and sufficient results in the practice of photography.

#### TITRATION.

The principle of the method of analysis by measure is very simple. It depends on the certainty and invariability of chemical reactions, which is taken advantage of, so that given the quantity of reagent solution of a known standard strength needful in a fixed amount of the solution tested, the equivalent quantity of the substance sought in that solution can be found by calculation.

This method presupposes that the substance to be examined is in solution and is used in measured quantity, or that it is previously brought in fixed proportion into the solution.

Then a certain number of cubic centimetres must be accurately measured by means of a pipette, and such an amount of the reacting solution added from a burette that the last drop of it shall bring the known completion of the reaction.

Then the quantity of the reacting solution which has been added is noted from the scale of the burette, and by calculation, the proportion of the examined solution is determined.

It is self evident that the quantity of the reacting solution and its strength must be accurately known.

The burette consists of a cylindrical tube open on both sides, and upon its lower tapering end, a caoutchouc tube with mouth-piece and stop-cock is placed, which latter permits the outflow of the reacting solution to be stopped or renewed at will. The tube is accurately graduated with whole, halves, and tenths of cubic centimetres. It is fastened on a stand so that one may, if desired, drop the reacting solution into a goblet.

For use the burette is filled exactly up to the line of division. Here, just as later in titration, the reading off must be done with the edge of the fluid. The upper surface of the fluid assumes in the narrow tube an arched form. As a rule, the reading off is not done from the edge, where the fluid moistens the glass, but from the under edge—*i. e.*, the arch in the middle.

In order to shorten the calculation or quite to avoid it, one may use the reacting solutions as so-called "normal solutions." These are solutions of which 1000 cubic centimetres correspond exactly to an equivalent of the reagent, or to an equivalent of the body to be examined expressed in grammes.

Tenth-part solutions contain or correspond only to one-tenth equivalent.

For instance, prepare a normal solution of table salt for silver titration so that every cubic centimetre of the same shows one per cent., corresponding to ten per cent. in nitrate of silver.

*Method according to Gay-Lussac.*—This is the oldest and most perfect method. For the purpose of the photographer, to whom the one-tenth per cent. would be a trouble, the following simplified version of this rather complicated receipt, will answer:

One must either weigh exactly 3.44 grammes dry, chemically pure kitchen salt, or prepare a saturated salt solution and measure out from it 12.92 cubic centimeters. The saturated solution is produced by shaking together long and well about 30 grammes

salt and 100 grammes water. This can be done by means of the Araometer at 15 degrees Celsius—it must show exactly 1.205 specific gravity.

The weighed or measured salt is dissolved in so much water that the whole volume amounts to 1000 cubic centimetres or 1 litre. When, by shaking, one is sure of the uniform solution and distribution the burette must be filled, and then so much allowed to run through the stop-cock, that the mouth-piece is full of fluid, and the fluid column reaches exactly to the highest dividing line "O."

Now, exactly 1 c.cm. of the silver solution to be examined, must be mixed in a pipette, and allowed to run into a small flask; rinse the pipette afterward with some distilled water. The salt solution is now allowed to run out of the burette. Instantly there arises a thick precipitate of chloride of silver, and a milky appearance of the fluid.

In order to get rid of this precipitate and bring the fluid back to its clear state, it must be well shaken or warmed. Then the salt solution must be again dropped in carefully, until the last drop produces no precipitate and no more murkiness. The oftener the solution is dropped in, then interrupted, and the silver solution made clear by shaking and warming, just so much more exact will be the result of the reaction. Then the result is read off.

Suppose 9.5 c.cm. salt solution was used, then in the examined silver solution there will be found 9.5 per cent. nitrate of silver. To be quite sure, the fluid can be made perfectly clear by shaking, and salt solution dropped in again. No murkiness follows, and so the first reading was correct.

*Method with Iodide of Potassium and Starch Paste* (according to Vogel).—This method depends upon replacing the silver solution with a standard solution of iodide of potassium and determining the end of the reaction by adding to the silver solution starch solution and a little nitric acid, until it is colored blue by free iodine. So long as nitrate of silver, undecomposed, is present, the bluing of the starch paste always disappears, but on the instant when all the silver salt is changed into iodide of silver, the first drop of potassium iodide will blue the starch lastingly.

*Production of the Normal Potassic Iodide Solution.*—Weigh out exactly 10 grs. chemically pure, dried potassic iodide, let it dissolve in water, and bring this solution by the further addition of water up to a volume of 1023.4 c.cm.

100 c.cm. of this solution should decompose exactly 1 gr. nitrate of silver; thus, every 1 c.cm. of the same should indicate 1 per cent. silver salt; if 1 c.cm. of the silver solution to be proved is brought for analysis, 1 c.cm. of the silver solution is measured, poured into a goblet, and distilled water added. Then to this fluid is added 1 drop of pure nitric acid, and 2 drops solution of nitre (3:100) in water; finally 10–14 drops of starch solution, which is 1 part starch with 100 parts water, shaken and heated.

Now, out of the burette the potassic iodide solution is allowed to run, and this instantly causes a yellow precipitate of iodide of silver. Just as soon as the blue color makes itself noticeable, which by stirring again disappears, the iodide should only be allowed to trickle in by single drops. The instant a drop produces the first lasting blue the reaction is ended, and the reading can be taken. By the number of cubic centimetres used in the iodide solution, the per cent. of silver salt is known.

In very strong silver solutions a few drops of starch solution should be put in at the end of the process. A stock of this can be prepared and a few drops of carbolic acid added, in order to keep it.

In the presence of salts of copper or mercury, or of hypo, this method is not available.

*Method with Kitchen Salt Solution and Chrome Alum* (according to Krüger).—This rests upon the following fact: That chromate of silver cannot exist in the presence of chloride of sodium. Thus, a mixed solution of kitchen salt and chrome alum may be used for titration; it causes a mixed precipitate of chromate and chloride of silver. As soon as all the nitrate of silver is transformed, the further addition of the standard solution will effect the change of the purplish red precipitate into white chloride of silver. The moment the last trace of this red precipitate has disappeared, the analysis is complete.

*Production of Normal Solution.*—Proceed as in the Gay-Lussac method, but add, beside the kitchen salt, the half of its weight of chrome alum, so that the solution in 1000 c.cm. contains a volume of 3.44 grs. kitchen salt, and about 1.7 gr. chrome alum. The proportion of this solution to the silver solution is exactly the same as in both other methods. Every cubic centimetre shows 1 per cent. silver in the silver solution.

In the analyzing, 1 c.cm. solution is likewise measured off, put into a goblet, and water added until it is diluted therewith to 100 c.cm. If it is not diluted, then the chloride of precipitate is too thick, and carries down with it little particles of chromate of silver, which is withdrawn in the decomposition by the kitchen salt solution.

According to the *Photographic News*, viii. 11, 1884, the principle of this latter method can be used for an approximate determination in the following simple way:

Arrange a trial salt solution for the silver bath, of which 1 c.cm. corresponds exactly to 1 c.cm. silver bath. This in the following manner: Suppose a 10 per cent. silver bath, which one wished to examine once in a while, 1 gr. nitrate of silver is equivalent to 0.3439 gr. salt, thus 10 grs. nitrate of silver is equivalent to 3.439 grs. of salt. Then 3.439 grs. (3.44 grs.) of kitchen salt is weighed, dissolved in about 90 c.cm. of water, 0.5 gr. chrome alum is added, and the solution brought up to 100 c.cm.

Now, in order to examine the ten per cent. silver bath, 1 c.cm. of this salt solution is put into a goblet from the pipette, diluted with about 100 parts water and 1 c.cm. of the silver solution allowed to drop down from the pipette. Every drop produces at first a red precipitate, which changes again in an instant to a milky appearance. Just as soon as the red precipitate remains unchanged, the action is finished.

Should one have used less silver solution than 1 c.cm., then the silver solution is stronger than 10 per cent; has the one cubic centimetre of silver solution been just consumed, then the silver bath has 10 per cent. standard. But if to complete the reaction more than 1 c.cm. must be used, then the silver bath is too weak.

The quantity used more or less than 1

c.cm., furnishes a key to the probable condition of the silver bath.

Had, for instance, 1.4 c.cm. of silver solution been used, in order to neutralize the 1 c.cm. of the salt solution placed for the 10 per cent. silver bath, then results the following proportion,  $1.4 : 1 = 10 : x$ ;  $x = 7.14$  per cent., as per cent. value of the bath. For this experiment was recommended the use of a measuring pipette of 2 c.cm., in degrees of 1-10 c.cm.

Better results may be obtained from the following method of the *comparative* precipitation, for those who cannot analyze, than the argentometer experiment. This is my own secret, not heretofore published, but furnishes in the approximate estimate of the precipitates as much exactness as the practical worker needs.

Let one take two narrow test tubes of exactly the same calibre, but in the one 1 c.cm. of a fresh solution of silver (1:10), in the other 1 c.cm. of the solution to be examined, and dilute both with 10 c.cm. of water. Bring both solutions simultaneously over a spirit lamp to warm, and add to each the same number of drops of muriatic acid, heat both, without any particular stirring, take both off at the same time, and let stand.

The quantity of precipitate, measured from the top of the layer, gives a direct clew to the value in nitrate of silver. The comparison would be faulty if they were shaken. In such comparative determinations the mistakes are insignificant, because it is supposed that the experiment was conducted throughout under similar conditions, and if there were any they would be completely eliminated. For all practical purposes they supply quite a sufficient degree of accuracy.

In regard to the details of the exact proportion of silver, should it be required by the practitioner, even though he have need of applying it only occasionally, it is absolutely necessary to follow exactly a well-considered and rational plan of work, and see that each separate result is not lost in the practical making up of his silver bath. However, the simple strengthening, according to the method given before, will not suffice, for one must know that if the silver bath is overcharged with waste ma-

terials, the result will be faulty before it even strikes the eye. There are certain indications in the appearance of the silver bath which determine the presence of many non-silver materials, such as the silver bath becoming brown, its foaming up in the pouring in—these are warnings to regenerate. Many photographers simply place such a silver bath a few days in the direct sunlight, or add besides so many drops of one per cent. solution of permanganate of potash as will cause the bath to assume a pale rose color. Others boil the silver bath again, or evaporate it in a steaming vessel until quite dry. In each case the organic substance is destroyed, but there is also a corresponding quantity of nitrate reduced to metallic silver, and this settles on the bottom as a grayish black powder, and must be filtered off before the bath is again used.

A certain dependence for the quantity of non-silver stuffs contained in the silver bath is furnished, moreover, by the argentometer method. For, if one understands how to keep the silver proportion of his bath always normal by sufficient strengthening, or has determined it by analysis, then will the addition of the certainly high sounding argentometer methods furnish a key to how much foreign material is present, and especially in regenerating, particularly of a silver bath freed from organic substances, how much nitre is present. For the quantity of nitre which cannot be removed by the regenerating spoken of above, will constantly work against the efficiency of the silver. The plan explained above for the care of the silver bath, will be somewhat different, according as one or the other of the strengthening methods mentioned is decided upon.

The formér of these does not aim at the preservation of the concentration alone, but of the volume of the silver bath also, while the second preserves also the normal percentage in silver salts.

*Working Plan for Sensitizing with always the same Volume of Silver Bath.*—Put for each separate sheet, or at least for every four or six sheets floated, as much strengthening solution to the silver bath as corresponds to the quantity of water and silver withdrawn. (See page 17.)

For every 100 sheets the silver bath must

be regenerated in regard to the removal of the organic substances therein dissolved; if foaming, or a brown appearance occurs, it must be done sooner. For every 1000 sheets the silver bath should be concentrated as far as possible, and regenerated for the removal of the nitre, according to the method described below, or it should be simply given to the residue.

*Plan of Work for Sensitizing with the Volume of the Silver Bath Diminished.*—Take, for instance, one liter silver bath, and with it silver (occasionally strengthening with some silver salts, as described) so long that the remainder becomes insufficient in quantity, then this must be placed for a few days in the sun, or boiled, and added again to a new liter of fresh made silver bath, which had been gotten ready for work in the meanwhile. Thus proceed with the remainder of this, and so on.

Should ten liters have been worked up in this way, then the rest must be regenerated to remove the nitre, or consigned to the residues.

The regenerating to remove the nitre consists in perfect mixture of the silver bath with soda, filtering, careful washing, and re-dissolving of the washed precipitate by the final addition (by drops) of diluted nitric acid.

Finally, add again so much soda that a small precipitate of carbonate of silver remains in the bath.

The silver bath so obtained gives, when measured with the argentometer, a certain estimate, because it corresponds to the requirement of the argentometer, which is a silver solution pure, and free from nitre. Conformably to this argentometer estimate, the silver solution can be brought to ten per cent. It must still be mentioned that the filtering and wash water of this operation must not be poured away before it is examined to find out, by the addition of muriatic acid, whether there are any soluble silver salts left in consequence of the presence of nitrate of ammonia. Eventually, the silver-holding filter must be dissolved with muriatic acid, and filtered chloride precipitate given to the residues.

*Additions to the Silver Baths.*—Various additions to the silver bath have been recom-

mended which, however, are useless if the bath is otherwise kept in order.

The addition of alum, to be laid in the bath in the form of crystals, has been recommended to prevent the foaming of the bath, or at least to diminish it.

A silver bath which is kept strong enough, and is regenerated from time to time, does not generally foam. Still less is the addition of chrome alum and nitric acid to be advised. All alum additions must necessarily cause the tanning of the albumen, and thereby injure the gloss; and thus it results that the albumen layer is impenetrable, and forms light blisters in the washing, and is, besides, extraordinarily brittle, so that the least bending of the paper causes it to crack.

The addition of sugar to the silver bath is said to make the paper smoother, so that it will stick better to the negative. Sugar, as an organic substance, however, tends to reduce the silver salts.

The best silver bath is, in every case, that which, outside of nitrate of silver, contains only alkaline nitrates, and no other additions.

(To be continued.)

## PRACTICAL PHOTOGRAPHY FULLY EXPLAINED.

BY DR. J. H. JANEWAY, U. S. A.

(Continued from page 337.)

### VARIOUS FORMULÆ.

BEFORE proceeding any further, it may be well to mention some formulas that have been found generally useful, by others and also by myself, for developing and the different operations that should now engage your attention in the beautiful art. At the risk of repeating some that have already been mentioned, they will be included here, believing that they can be more readily found when time is an object. Where possible the author's name has been given.

#### THE FERROUS OXALATE DEVELOPER.

*Stock Solution No. 1.*—A saturated solution of neutral oxalate of potash, made by pouring upon one pound of neutral oxalate of potash twelve ounces of boiling water.

*Stock Solution No. 2.*—A saturated solution of sulphate of iron, made by placing

one pound of protosulphate of iron (ferrous sulphate) in a bottle holding twenty ounces, and filling the bottle with hot water. Keep this solution in a well-stoppered bottle (ground glass stopper).

*Stock Solution No. 3.*—A ten per cent. solution of bromide of potash. After using from each of these stock solutions, crystals will be found in the bottle; then add enough water to dissolve them.

*For Development.*—For each ounce of No. 1 add two drachms of No. 2 (the iron is always to be added to the oxalate, bear this in mind), and four or five drops of No. 3. For over-exposure add ten to twenty drops of No. 3. This developer will produce negatives of very fine printing powers, sharp and crisp.

#### PYRO AND POTASH DEVELOPER.

(RIPLEY'S.)

##### No. 1.

Sulphite of Soda (crystals) . . . 3 ounces.  
Citric Acid . . . . . 60 grains.  
Bromide of Ammonium . . . 30 grains.  
Pyrogallie Acid . . . . . 1 ounce.

Distilled water to make the whole measure 10 ounces. Dissolve in the above order.

##### No. 2.

Sulphite of Soda (crystals) . . . 2 ounces.  
Carbonate of Potash . . . . 3 "

Distilled water to make the whole measure 10 ounces.

Weights are based on 480 grains to the ounce.

To develop, take one drachm each of No. 1 and 2, with enough water to make two fluidounces.

To obtain great softness and delicacy add two ounces more of water. For strong contrasts double the quantity of Nos. 1 and 2. For short or under-exposures begin with one drachm of Nos. 1 and 2, with water to make four ounces, and when the detail is out, apply the developer recommended for strong contrasts.

#### PROFESSOR NEWTON'S.

##### No. 1.

Water . . . . . 32 ounces.  
Potass. Carbonate (gran.) . . 3 "  
Soda Carbonate (gran.) . . . 3 "  
Potass. Ferricyanide . . . . 3 "

Dissolve and filter.

##### No. 2.

Water . . . . . 32 ounces.  
Sulphite of Soda . . . . . 1 ounce.  
Dissolve and filter.

To develop, take No. 1 one-quarter to one-half ounce; No. 2 one and three-quarter ounces; dry pyrogallie acid two grains.

This developer which, for most plates, seems to be well adapted, has been published with or without slight modifications by some who have not seen fit to give the credit due to its distinguished author. It seems to me that it would have been much to their advantage had they acknowledged its paternity.

#### CARBUTT'S.

##### No. 1.

Distilled or Melted Ice  
Water . . . . . 32 ounces.  
Sulphite of Soda (crystals) . . 4 "  
Dissolve and add slowly  
Sulphuric Acid . . . . . 1 drachm.  
Pyrogallie Acid . . . . . 1 ounce.

And water to make 16 fluidounces.

##### No. 2.

Distilled or Melted Ice  
Water . . . . . 1 ounce.  
Soda Carbonate (gran.) . . . 2 ounces.  
Potass. Carbonate (gran.) . . 1 ounce.  
Yellow Prussiate of Potash . . 1 ounce.  
Dissolve and add water to make 16 fluid-ounces.

During hot weather add one to twenty grains of bromide of potash.

#### BROMIDE SOLUTION.

Bromide of Potash . . . . . 1 part.  
Water . . . . . 8 parts.

To develop, specials and instantaneous. To four ounces of water add three drachms of No. 1 and two drachms of No. 2. On B plates, use half drachm each Nos. 1 and 2 to each ounce of water, adding more of each as may be required.

This developer, I think, should not be made in any quantity, especially No. 1 or the pyro solution, for, from its composition (and this will apply to all developers where sulphuric acid is used), it must of necessity become weaker and weaker the longer it is used. The sulphite of soda, used principally to preserve the pyro, is not a stable salt by

any means, and the addition of sulphuric acid changes the salt, and prevents, what you wish to accomplish. In my opinion the vegetable acids give the best results. Citric acid, or, preferably, oxalic acid (this being a strong poison care should be exercised in using it, and especially should it be properly labeled), has lately been advocated by Mr. Thomas Pray, Jr., with good sound reasoning and strong sense. In any case I would advise you to make up but a small quantity of the pyro solution at one time. Some good workers advocate the addition of the pyro just before beginning development.

But we must not forget the soda developer, and the following is the best that I know of of its kind.

No. 1. Saturated solution of carbonate of soda (washing soda).

No. 2. Saturated solution of sulphite of soda.

No. 3. Pyrogallie acid dry.

*For time exposures.*—No. 1 one-quarter ounce; No. 2 one-half ounce; No. 3 fifteen grains. Water to make the whole measure four ounces.

*For instantaneous exposures.*—No. 1 one-quarter ounce; No. 2 one-quarter ounce; Water three and a quarter ounces; pyro fifteen grains.

Dissolve the pyro in a quarter ounce of No. 2 (sulphite of soda sol.), add from No. 1 and the water, upon the plate; let this remain for a minute or two and then add gradually No. 2 with the pyro, one-half of the quantity (one drachm) at a time.

#### CLEARING SOLUTION.

Plates developed by pyro are often stained by it, either from using an old developer, continuing the development too long or hasty, and imperfect washing. The following will be found to be effective in removing the stains and brightening the negative.

Alum . . . . .	1½ ounces.
Sulphuric Acid . . . .	1 drachm.
Water . . . . .	20 ounces.

Immerse the plate after washing and before fixing in this bath, rock to and fro for a minute or two, rinse and immerse in the fixing bath.

(To be continued.)

#### FOREIGN CORRESPONDENCE.

PARIS, April 30, 1888.

MR. W. GOULD LEVISON,

President Brooklyn Academy of Photography.\*

DEAR SIR: Probably a few words from an absent member may not be devoid of interest to yourself and the Society, in the nature of a preliminary report on things photographic, as far as I have looked them up in France.

There seem to be but two societies of any note in Paris—the Société Française de Photographie, organized in 1854, with a present roll of over 400 active members, consisting of amateur and professional photographers, manufacturers of instruments, etc.; the Société des Excursionists numbers about 150, mainly amateurs. As the unworthy representative of your honorable and august body I was cordially welcomed at meetings of both societies, and have had the honor of an invitation to a banquet to be given by the Société Française on the 5th of May.

At a regular meeting of this society I had the pleasure of meeting many eminent men in photography, and of listening to a number of able papers, one on Platinotypie by Chalot, and one on Hydrokinon by Balagny. America was represented by the agent in Paris of the Eastman Company, Mr. Nadar, who made a very fine showing of their transferotypes. Mr. Davanne, the vice-president (who occupied the chair), and Mr. Albert Londe, spoke to me in the highest terms of your paper on Instantaneous Shutter Speed, and said that extracts therefrom would shortly be published in their Annales.

On Mr. Londe's invitation I visited his laboratory at the Hospital of La Salpêtrière. As at that time I could stay but a few moments, he very cordially requested me to repeat the call, which will certainly be done, as his special work—instantaneous exposure—is particularly interesting to us; his subjects, patients of Dr. Charcot, being in great part victims to nervous diseases, and who do every thing and anything but "sit still and look pleasant." Mr. Londe presented me with some very interesting lantern pictures of an explosion near Paris.

\* By whose courtesy we are permitted to share these useful letters with our readers.—ED. P. P.

At Mr. Balagny's laboratory I examined his *plaques souples*, or film negatives, a sample of which I will send you in my next letter. He has also created a detachable film, which, in his hands, is certainly a success, but the high cost, equal to over one dollar per dozen for quarter size plates, will probably prevent its general adoption. This gentleman is an ardent advocate of hydrokinon. He made up a bath before me to show his method. He keeps in stock separate solutions of carbonate of soda and sulphite of soda, each in the proportion of 250 grammes of the salts to 1000 cubic centimetres (1 litre) of water. Carefully decanting 300 c.c. of the sulphite of soda solution he heats this in a water bath to a temperature of about 60° centigrade, and into it pours 10 grammes hydrokinon, keeping the vial in constant motion until *every crystal* is thoroughly dissolved. The colorless resultant liquid is now mixed with 600 c.c. of the carbonate of soda solution, which turns it slightly amber. This developer, he claims, will remain clear for two months or more, and retain its power. With about three ounces he developed twelve instantaneously exposed film negatives of 13 x 18 centimetres. The developer somewhat yellowed after this, and was poured into a stock-bottle for future use on time exposures.

Hydrokinon is retailed here at twenty-five centimes per gramme. I have used it, and find it very good. I understand that Londe is not an advocate of hydrokinon for portrait negatives, and claims that pyro obtains a finer gradation. As I will probably have a day with him at his work, I will be able to write of this more fully.

With heartiest wishes for your continued successes as leaders in showing photographic societies what and how to do, believe me

Very sincerely yours,  
FRANK LA MANNA.

#### SECOND LETTER.

PARIS, May 16, 1888.

DEAR SIR: By this mail I send you a copy of the Constitution of the *Société Française de Photographie*, and various catalogues, etc., of an exhibition of cameras and appliances, now being held at their new meeting rooms. I have not had time to

look at this exhibition carefully, but from a cursory examination do not believe that there is anything new or original; in fact, am certain that if any very striking novelty in photographic novelties is in existence, the inventors are jealously guarding it from view until the great exposition of next year.

I have received the slides you kindly forwarded; too late, however, for the May meeting of the French society. They will be shown officially in June. I have, however, projected them at a semi-official meeting and am happy to say they were loudly applauded.

A portion of a day passed with Albert Londe in his laboratory at the Hospital of la Salpêtrière, enabled me to see him at work on his nervous subjects. One unfortunate whose glory and misfortune consisted in having an entirely new malady, which, from a dilatation of the great sympathetic nerve (I believe it is called) produces an exaggeration of all the extremities, etc., was pictured full length (nude) sixteen times in as many positions. Londe develops in what appears to be a very rational way, with saturated solutions of carbonate of soda, sulphite of soda, and dry pyro. Commencing with a light dose of pyro (about one grain) he adds, say a spoonful of sulphite solution, a few drops of bromide (a ten per cent. solution), fills his graduate with water and pours this on the plate, which is rocked automatically; he then adds a little carbonate solution, watches for the picture, gradually adds carbonate to obtain the detail required, and then adds pyro for sufficient intensity. Each addition is, of course, made in the graduate and not in the tray. New solution with every plate is, as he acknowledges himself, rather wasteful of chemicals but saving on plates, as he can guide his negative to any desired point of detail or intensity, whether it be instantaneous or time. In fact, he developed 450 negatives 13 x 15 c.m. in four days without losing one. I have this information from Dr. Le Bon, author of *Early Civilizations*, who had taken these negatives in India and China; the result was all the more astonishing, as among them were exposures of all times from instantaneous to several hours.

I had the honor of an invitation to the annual dinner of the *Société Française*. The

President, Mr. Davanne, made a very flattering allusion to our society in his speech. Professor Jannsen, of the French Institute and director of the observatory at Mendon, also spoke, and I deeply regret that no stenographic report of his speech was had. As a young man studying astronomy he was struck with the invention of Daguerre and Niepce, and at once took up its study with a view to its astronomical application, but he acknowledged with pleasure that an American, Draper, was the first to practically enter the field. He complimented photography in the States, and especially our society, whose programme I had already explained to him. He likened photography to printing, one being to vision that which the other was to speech. My modesty urged me to keep silent, but gratitude prevailed, and in a few words in your name I thanked them for their kind welcome and good words, and in gratitude to a country which had produced Daguerre, in which our art was born, and which was now giving and would still continue to give us great names, I toasted "La France Photographique." M. Gauthier Villars, the publisher of scientific works, very kindly presented me as a souvenir of this dinner, and as his tribute to our society, a copy of Davanne's work on photography, which had just been published.

Accepting an invitation from Professor Jannsen, I visited the observatory at Mendon. Want of time prevents my describing the many interesting things there, the twelve foot telescope camera for instantaneous sun spots, his rapid shutter—slit opening—of  $\frac{1}{30000}$  second exposure, his array of tubing sustaining pressures of 300 atmospheres for the study of compressed gases with the spectroscope, etc. I obtained from him for the Academy a magnificent sun spot photograph (signed), and a valuable collection of his works on general and astronomical photography.

I hope to have the pleasure of giving you verbally fuller particulars, and of showing you at one of our meetings lantern pictures taken during this trip.

Very sincerely yours,

FRANK LA MANNA.

## OUR PICTURE.

THE charming little "Two Years Old" picture which forms the chief attraction of our current number, will prove a pleasant relief from the variety of prize pictures, photo-zinc etchings, and other works of photography which have served as our late embellishments.

We are acquainted with the coy little darling who serves as model for us. Only a few days ago we had a personal romp with her. She is rarely so sober and still as she appears in her picture. She never walks—she *can*—but she never does. She comes to you with a little trot, all her own and there are two rows of shining pearls hidden behind those lips, which rival her bright eyes in sparkling glory, as the planets rival each other. She is a merry make-up and Mr. Augustus Marshall, the veteran Boston photographer, who made the negative, no doubt had to resort to his inmost persuasiveness and cajolery, to induce his tiny model to look so intent while he pneumated her.

Some time ago Mr. or Mrs. "A. W. N." published the following in *St. Nicholas*:

### TAKING BABY'S PICTURE.

*Photographer :*

"Cards? Four dollars. Six for this size. These will please you best, I think. I'll be ready in a moment, And we'll take him in a wink. Bring in baby. Will you hold him Sitting in your lap, and—No? Ah! I see!—Then we'll arrange him In this little high chair.—So!—There that's easy—'Heigho, baby, Going to take a little ride? Want to see the pretty birdy?' (When I'm ready step one side.)"

*Mamma :*

"Now, my Bessie, do not whisper; We must still as statues be. If we speak the baby 'll surely Turn his head and look at me."

*Photographer :*

"(Now, good Nurse, please raise him up A little—there!)—'Hear birdy sing?' (Little more!)—'Where is the birdy?' (That's right.)—'What shall Nursey bring?'"

(Try to close his mouth.)—‘*Come birdy!*’  
 (Now his head is up too high,  
 Easy,—there! (‘*Chirp, chirp,—hear birdy?*’  
*Baby see birdy by an’ by?*’  
 (That’s right—keep him so!)—‘*Good baby,*’—  
 (Steady!) ‘*Baby would ’nt cry!*’—  
 (Now then!)—‘*Look! SEE! HERE’S BIRDY!*’  
 —Caught him, first time, ‘on the fly!’”

“Yes, it’s good. I know you’ll like it.  
 I’ll have proofs without delay.  
 Can’t be better. Finished?—Friday.  
 Very much obliged. Good day!”

We desire to state that “Two Years Old” was not the “baby” alluded to by “A. W. N.”. She has heard all the “birdy sing” schemes; she knows every “chirp,” and if there is anything she abhors it is to be called “good baby.” Yet she is one of the loveliest little fair-hairs that ever flooded a household from attic to basement with that glorious element which flows from “a well-spring of pleasure.”

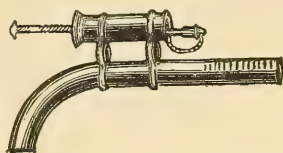
Besides a lovely portrait we also have a process picture here which is worthy of more than passing notice. It belongs to the collographic class detailed so fully by Mr. Wilkinson in his new work, and was printed for us by the Boston Photogravure Co., 27 Boylston St., Boston. As an example of press printing it is admirable. We think the majority of photographers would be very glad if they could secure such lovely half-tones and softness by means of contact—sun printing under the negative. All these things combined with the simplicity of the pose and careful lighting, present a most interesting and lovely study.

### THE FLASH LIGHT IN HAND.

A NUMBER of contrivances have been suggested for the management of the flash light, and in working them resort has been had to every sort of ignition from the common match to the electric spark. The drawback to much of the suggested apparatus has been that it is cumbersome and in the way, and prevents the disposition of the light being made just to suit the judgment and feeling of the operator and the nature of the subject.

The best appliance we have seen comes to us from the Hawkrigde Manufacturing

Company, and is the product of the fertile genius of Mr. S. Hawkrigde, whose fame as a magic lantern manufacturer and optician is well known to many of our readers. We think the invention will be at once understood when we append an engraving of it with the instructions for using it. He calls it “The Non-explosive Pistol Lightning Flash.” And here are instructions how to use the pistol lightning flash:



*First.* Dip the perforated barrel of the pistol into a bottle of alcohol.

*Second.* Light the same with a match, candle, or at the gas, allowing it sufficient time to burn into a good flame.

*Third.* Take off the small cap with chain attached to it on the end of the tube on the piston barrel.

*Fourth.* Hold the pistol in your right hand in a perfectly horizontal position, with the curved part of the handle in the palm of your hand, place your forefinger on the first upright of the piston barrel, and your thumb on the knob at the end of the piston with the spiral spring on it, then push the piston with your thumb, regulating the size of the flash required according to the pressure of your thumb.

*Fifth.* To reload the pistol unscrew the end of the piston barrel with the tube, cap and chain attached to it, fill the piston barrel with the non-explosive powder to within one-quarter of an inch of being full, then screw on the end and be sure that the tube, after it is screwed on, points directly over the centre of the perforated barrel.

*Sixth.* When not using the pistol for the flash, be particular to keep the small cap on the end of the tube, especially when dipping the perforated barrel into the alcohol; by paying particular attention to this you will not lose or waste any of the powder.”

The length of the “pistol” is about a dozen inches, and the piston barrel, which is about three-quarters of an inch in diameter, con-

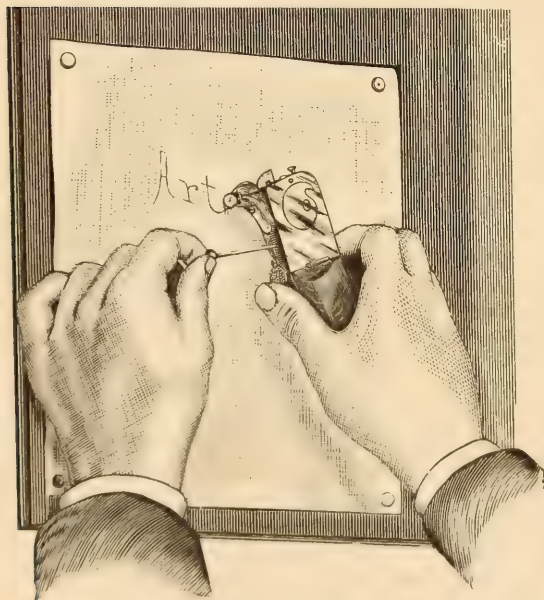
tains sixty charges. Thus, it will be seen the flame and the non-explosive powder can be carried in the hand of the operator and "fired" upon his model at will—much on the light side—a little, to detail the shadow quarter, with as much ease and safety to the model, as Barnum's young lady surrounds her subject with broad-bladed butcher knives. It is entirely under control.

Mr. John Clark, 221 Bloomfield Street, Hoboken, N. J., is the agent, and all dealers will be supplied.

### THE AMERICAN RETOUCHING MACHINE.\*

THIS ingenious invention of L. Walkup, Rockford, Ill., is designed to replace the pencil of the retoucher; and it is claimed that as soon as one has become accustomed

FIG. 1.



to its use, the work can be done much more quickly and uniformly than with the pencil.

\* Translated from the German for the PHILADELPHIA PHOTOGRAPHER from Prof. Mücke's book upon "The Retouching of Photo-negatives and Copies."

Even fine drawings can be done with great accuracy with this instrument, as specimens have demonstrated.

The principle is this: A needle oscillating with great rapidity (5000 vibrations per minute.—ED.) carries liquid color under a jet of air which distributes the coloring matter upon the paper in fine particles. This bellows, the so-called *Air Brush*, is guided by the hand and is connected with the air reservoir by a rubber tube. Fine lines or broad shadows are obtained according as one holds it nearer or further from the paper, and feeds more or less color. The air pump has a treadle like a sewing machine, the air is stored in a tin reservoir and goes thence through a rubber tube to the air brush. The air stream now divides into two, one of which drives the wheel to which the needle is attached, the other

FIG. 2.

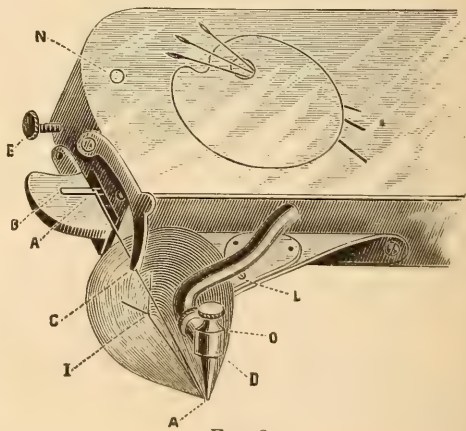
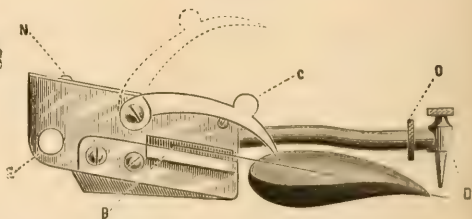


FIG. 3.



stream is carried to a very small downward opening which serves as the bellows. The needle vibrates in a little spoon in which the liquid color is placed.

#### SETTING UP THE INSTRUMENT.

The pump is placed under the easel as is

most convenient to one when sitting. The air chamber is put in place at the right and joined to the pump with the larger tubing.

FIG. 4.



self before the easel, as shown in cut, although he can work standing if preferred. The instrument is held as in in Fig. 1, save that ordinarily the right hand only is used, the left serving to steady the brush for very fine work.

#### THE AIR PUMP.

Fig. 5 shows the pump complete. Fig. 6 shows the valves and the parts taken out in the order in which they belong. Q is the ingress or receiving valve, and R the egress or retaining valve which keeps the air from rushing back into the pump.

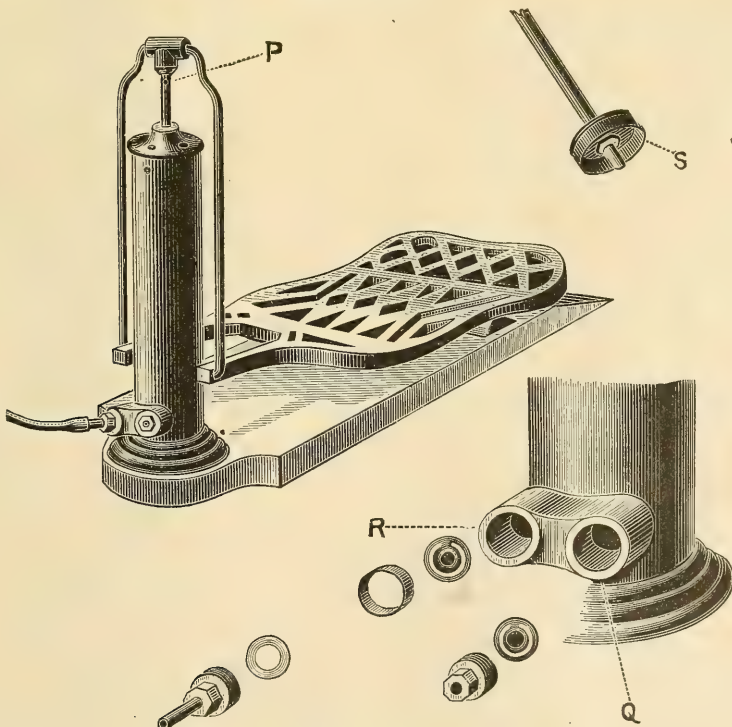
S is the iron plunger rod with valve of calf leather. The pump can be readily taken apart when desired.

#### DESCRIPTION OF THE PARTS OF THE INSTRUMENT.

Fig. 7 shows the air brush, natural size, with the cover removed.

A is the needle which distributes the color.

FIGS. 5 AND 6.



The small tubing joins the brush and the air chamber. The artist usually seats him-

It must be kept straight and sharp. Its position is shown in Figs. 2 and 3.

B is the walking bar into which the needle is hooked (see also Fig. 3). It can be raised or lowered at will. Pushed down closely it steadies the needle. Color must not be allowed to accumulate under the guide where it touches the needle, as this causes friction and stops the motion.

D is the little "bellows" or downward air blast which distributes the color. It must be in such a position that the needle coming out of the point of the spoon passes directly under it. Fig. 3 shows relative



positions of spoon and air blast. It is essential that the color-laden needle pass directly through the centre of the jet of air as it issues at D.

E is the "needle set screw," and aids in adjusting the thumb valve to a longer or shorter needle.

F is the thumb valve. Its forward and backward motion governs the length of the vibration of the needle. Its in and out motion opens and cuts off the whole air current—i. e., it stops or starts the instrument.

G is the friction screen regulating the forward and backward motion of the thumb valve.

H carries the air jet which drives the wheel.

I is the spoon or color receptacle. Its point must lie exactly under the needle, but not touching the air jet.

J is the mahl stick used with left hand in working out a bit of detail.

K is the main valve which admits air to the instrument, and is controlled by thumb valve F.

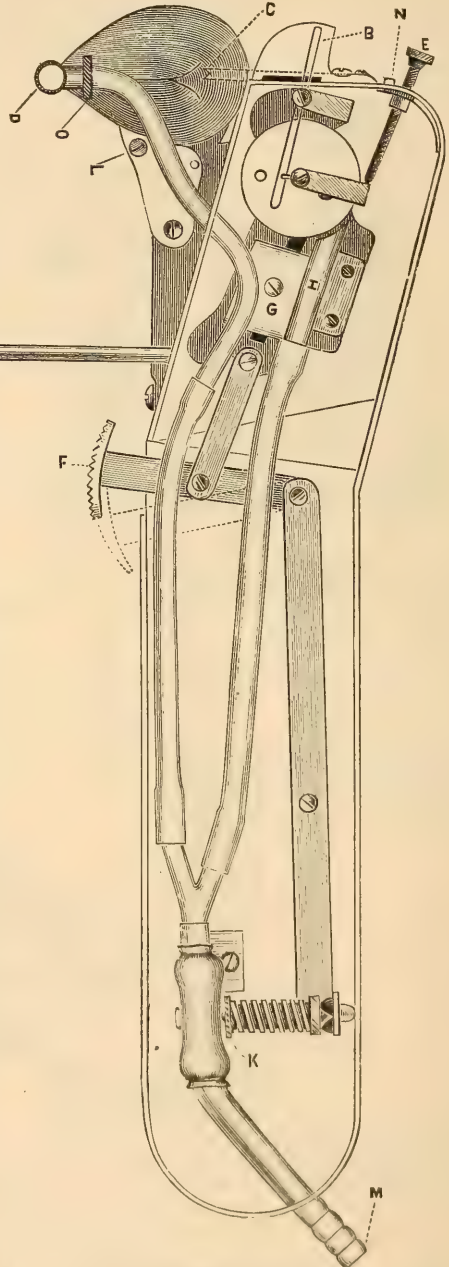
L is a screw by which the downward blast may be slightly raised if a more granular shadow is needed.

M is the opening at which the rubber tubing connecting with air chamber is attached.

N is the spring catch for cover, by means of which the entire top of hand piece may be removed.

O is the little bur screwed against downward blast to prevent leakage of air. It holds the point in position over the needle.

FIG. 7.



### SOCIETY GOSSIP.

CINCINNATI CAMERA CLUB.—At the regular semi-monthly meeting of the Photographic Section of the Cincinnati Society of Natural History, held on Thursday

evening, April 19, 1888, the following officers were elected for the ensuing year :

*President.*—George Bullock.

*Vice-President.*—George McLaughlin.

*Secretary.*—W. D. Holmes.

*Treasurer.*—T. H. Kelley.

*Librarian.*—Archibald I. Carson.

The committees appointed by the President for the ensuing year are as follows :

*Programme for Regular Meetings Committee.*—Dr. George M. Allen, Chairman, H. C. Fithian, and C. L. Harrison.

*Excursion Committee.*—George Peck, Chairman, D. B. Gamble, and T. B. Collier.

*Print Exhibition and Presentation Print Committee.*—George McLaughlin, Chairman, E. B. Johnston, Arthur LeBoutillier, and Archibald I. Carson.

*Lantern Exhibition Committee.*—W. D. Holmes, Chairman, H. P. Piper, and Chas. Phipps.

*Club Album Committee.*—Mrs. Elizabeth S. Laws, Chairman, Mrs. L. C. Weir, and Mrs. Herbert Jenny.

*Slides for Interchange Committee.*—T. H. Kelley, Chairman, R. S. Fulton, and A. D. Smith.

Address all communications to

W. D. HOLMES,

Secretary.

AVONDALE, CINCINNATI, OHIO.

IN the rooms of the Photographic Society of Philadelphia, 1305 Arch street, the annual exhibition of its members' work is now being held. While it is not so large as might be desired, there is a notable display of the progress photography has been making toward the picturesque, which not many years ago was little more than dreamed of, but is now a pleasant reality.

There is considerable variety offered in the exhibition both as regards subjects and the methods employed.

It is possible that there is but little division of opinion in the choice of the gems of the exhibition, contained in the frame labeled with an improvement on the old nursery rhyme, "there was a young woman, and what do you think, she lived upon nothing but Victuals and Drink." The difference between this and the old song consists in substituting "young" for "old." The pictures show a wee little girl, such as

Sir John Millias loves to paint, with long flowing hair, and dressed in a cute "Mother Hubbard," sitting before a beautifully set table.

In one picture the little one eyes the spectator coyly as she puts a spoon in her mouth, and in the other her pretty little countenance is lost sight of behind a huge silver mug from which she drinks. They are really artistic in conception, and the skill with which they are composed makes them doubly so. These are the work of Robert Stuart Redfield, who has a number of other clever photographs, which are beautiful specimens of clean, clear prints, with much attention to details.

Of the photographs shown by John Bartlett, the flower, fruit, and still-life studies are the most interesting from a picturesque point of view, though from a technical standpoint his figure compositions are valuable proofs of what can be obtained by the "flash-light" process. H. H. Supplee shows some pretty and original poses in a number of interesting three-quarter lengths, and a pair of wild ducks hanging up, by S. Fisher Corlies, makes an agreeable picture of a somewhat hackneyed subject. David Pepper, Jr., exhibits a frame of foreign views taken with a "detective" camera.

Of the specimens shown by Edmund Stirling, possibly the prettiest is a view of an old mill dam on the Brandywine, which is a good photograph of a well-chosen and picturesque scene. Dr. C. L. Mitchell shows a number of interesting landscapes and cascades.

Taken as a whole, the exhibition may be considered as a successful one and displaying much promise for the future of this comparatively new art.—*Ledger*.

THE CAMERA CLUB, OF HARTFORD, OUTING.—The Camera Club party numbered twelve on their Greystone outing yesterday morning, the very unpleasant weather early in the day preventing a much larger number from going. Those who went had been off mornings that were fully as unpleasant, and this time as before they were rewarded by a perfect day for photographing—not a breath of wind and just enough sunlight to give a little sparkle and life to the pictures.

The water was high, so that the falls at the old clock shop were in splendid condition to photograph and formed the principal point of attraction. The pond above the dam was in the early morning as smooth as glass and reflected the old red mill and bridge as clearly as the objects themselves. There were 85 negatives exposed, 69 being paper negatives (films), and 16 on glass, showing that the amateurs are rapidly adopting the lighter and more desirable films for the heavy and bulky glass negatives. Two of the party had roll holders, in each of which there was enough material to take 48 negatives,  $6\frac{1}{2} \times 8\frac{1}{2}$ . The roll holder does not weigh over  $3\frac{1}{2}$  pounds, and measures only  $7\frac{1}{2} \times 9\frac{1}{2} \times 3$  inches.—*Hartford Paper*.

### WORLD'S PHOTOGRAPHY FOCUSSED.

THE interest in the stereoscope is rapidly increasing in Europe, and from all appearances stereoscopic pictures will be the prevailing style during the coming season. After the lantern slide there is nothing in our art so delightful.

HYDROCHINONE is gradually getting the better of pyro, and it is only a question of time when the new developer will be master of the field.

IN explaining the difficulties he had with the development of some negatives made a short time ago under adverse circumstances, Mr. Carbutt the veteran dry plate master said to us; "Hydrochinone saved what are of any service, and the sooner photographers wake up to the value of this new developer, the better for them. You can do anything with it from instantaneous to black and white."

SOME of the best views of the Alps are now made by moonlight.

MR. BOISSONAS, of Geneva, is using the camera with red and green Bengal lights. Orthochromatic plates of course.

SOME recent trials with Mr. Carbutt's orthochromatic plates convince us that they possess qualities unfound with other plates.

Using them upon natural subjects where color value was important for photo-engraving, our results charmed us exceedingly.

### THE OPEN CORNER.

MR. BROMLEY, of Buchanan, Bromley & Co., 1030 Arch St., Philadelphia, in a recent conversation, asserted that, in his opinion, a very important step toward securing better prices is the working of a graded scale of prices, using a better variety of card mounts. Almost every one likes to see pictures attractively finished, and in nine cases out of ten the patrons of those who try the graded plan "choose the best."

ANOTHER request comes to us for "the how to make the silhouette pictures seen so often at some of the sea-side resorts." Will some one help us out?

SOME strange things occur in this world. A month ago we broke ourselves all up on account of good Dr. Phipson and confessed our unintentional theft of his ideas. Since then we have received a late issue of the *Moniteur de la Photographie* (the excellent Parisian journal from which we habitually translate Dr. Phipson's notes), wherein also the learned savant hauls us over the coals in French. In the same issue of *Le Moniteur* an article on "A Fixing and Toning Bath" which appeared originally in our pages, was republished and credited to the *Bulletin Belge*, our valued Brussels contemporary. Ah! *Monsieurs! Apres vous!*

HOLD FIRM.—Some time ago one of our readers asked us what he should do to "beat a Cheap John who was cutting prices." We advised him to improve his own work and to hold firm. He now writes us as follows:

"My gratitude to you for all your past advice and assistance can be measured out by the steady increase of my business; my success is now established beyond a doubt, notwithstanding the fact that my competitors have endeavored to drive me out by lowering their prices. The effect to them has been ruinous, while it has made me more exclusive. Why will people be so foolish?"

Let the weak-kneed take courage.

AT Lone Pine, Inyo County, is a rock that might easily be passed off for a petrified elephant. A photograph of the rock shows as like as possible to the photograph of an elephant. The trunk, the eyes, the head, and body are all as well formed in the photograph as if the camera had been turned toward a living animal. The wrinkles and folds in the skin of an elephant and the color are all repeated in the rock. The symmetry and proportions of the living animal are reproduced in this remarkable freak of nature.—*Independence (Cal.) Independent*.

C—t! A similar (and doubtless larger) rock exists in the Crawford Notch, New Hampshire, and thousands of his photographs have been sold. We have enjoyed many a fine prospect from his back.

A PROFESSIONAL VIEW OF THE CASE.—“I am frequently asked,” remarked a St. Louis (professional) photographer to a *Globe-Democrat* reporter, “if the amateur photographers do not cut into the professional photographer’s business. Not at all. I am glad the number of amateurs is increasing rapidly. Just in that proportion do the people at large more fully understand what photography is, and appreciate good work. I do not think any of the old photographers have lost any trade by reason of the amateurs. To be sure, the people who are in the business for amusement take a great many pictures—cabinets, groups, and everything else, but it is only as an amusement, and when they want pictures to send away or to give to their friends they come to us, and when they do come to us they want a perfect and finished picture—one, too, which they can study and endeavor to equal. So you see it is rather more of a pleasure and profit to have these amateurs about us. They are generally very gentlemanly young men, good conversationalists, and of bright minds, and if we do them favors they take pleasure in returning them. In many branches of trade and business the amateur is a nuisance, cutting down prices below a living point, but it can be emphatically said that the professionals can afford to encourage the amateurs to amuse themselves while they go on making a living.”

[Translated for *The Philadelphia Photographer*.]

## PYROCATECHINE AND HYDROQUINONE.

### HOW TO MAKE THE HYDROQUINONE BATH.

BY G. BALAGNY.

SINCE the formula given by us for the use of hydroquinone, several persons conceived the idea of adapting it to pyrocatechine, which substance had already been pointed out as a developer by Dr. Eder, as early as the year 1881. It has been said recently that the use of pyrocatechine might be preferred because the solution of hydroquinone did not keep well in open bottles, because it became black, etc. Here we have an error to which it is easy to reply. Let us first state that pyrocatechine may be used for development, just as well as hydroquinone. But it is very dear (costing one franc fifty centimes per gramme), and, moreover, notwithstanding contrary assertions, we much doubt if it possesses the energy of hydroquinone for the development, not only for time clichés, but especially for instantaneous plates. The depth of the shadows is so complete, so perfect, that we obtain by this hydroquinone development instantaneous clichés of rare beauty, and when we made our first experiments, we were so much surprised that, at once, we abandoned the use of pyrogallie acid. But for these qualities to exist, it is necessary for the bath to be well made, and in showing how to do so, we will reply at the same time to those who erroneously believe that hydroquinone cannot be preserved when in solution. It is necessary to state that in hydroquinone as well as in pyrocatechine we find samples possessing different degrees of solubility. For three months we had some hydroquinone which dissolved marvellously well in the mixture of sulphite and carbonate. In a few moments the ten grammes added to the three hundred of sulphite, and the six hundred grammes of carbonate, were completely dissolved. We then made use of the solution, as we required it, without ever placing the stopper in the bottle. We never remarked the least change of color in a bath which had not been used. It is only use which can cause a hydroquinone bath to become yellow, and then but very

slightly. We have now one in frequent use for more than three months which is not much redder than a pyrogallie bath after developing four clichés. We know, however, that some persons have complained of the instantaneous reddening of their bath a short time after its preparation. We did not know to what cause to attribute this effect, and we attributed it to the product, when, a few days ago, the same occurred to us, with hydroquinone which up to this time had given us such excellent results that we could not lay the blame on the product. We have been happy enough to discover the cause of this trouble. As we have previously said, we make use alternatively either of an alcoholic solution of hydroquinone, or of a solution of hydroquinone in the mixture of sulphite and carbonate. When making use of the alcoholic solution, here is the mode of proceeding: We naturally allude only to instantaneous clichés, as we know that for all others new baths should never be used. Suppose that we have an instantaneous cliché to develop in a bath prepared by means of the alcoholic solution of hydroquinone. We place in a glass one hundred grammes of sulphite to which we add two hundred of carbonate. In accordance with our formula we pour into a graduated measure from twenty to thirty cubic centimetres of the alcoholic solution of hydroquinone at ten per cent. This represents a bath at one per cent. or nearly so. It will be seen at once that in thus using the alcoholic solution of hydroquinone, it is possible to graduate, so to speak, the bath at will, and increase or diminish the quantity of hydroquinone according to the light, rapidity, etc. We have said, in a general way, that in the month of January, a bath at one per cent. was to be recommended; Yes, at that time, but hydroquinone is so energetic a developer, that we are sure, in fine weather, one-half of one per cent. will be sufficient, perhaps even, one-fourth of one per cent. Thus in the three hundred cubic centimetres of the mixture mentioned above, from ten to fifteen cubic centimetres of the alcoholic solution of the hydroquinone might be sufficient.

In the bright days of May and June it

might be possible to mix with advantage the new bath with a little of the old one. All the solutions of hydroquinone made in this manner keep well indefinitely, with all the samples of this product more or less soluble. In five months I have not had one solution to blacken. The privilege which has been accorded to pyrocatechine is, therefore, purely illusory. But if this obtains for alcoholic solutions, it also obtains for aqueous solutions. Let us again give our formula: Place in a quart bottle three hundred cubic centimetres of sulphite and six hundred cubic centimetres of carbonate. We weigh ten grammes of hydroquinone and we place them in the bottle. Now constant agitation is necessary until the last particle is dissolved, as the least crystal remaining at the bottom of the vessel rapidly oxidizes. A cloud, at first brown, forms around it, and little by little spreads through all the liquid, gradually blackening until it becomes as black as ink. This is a phenomena that once happened to us, and one that we did not suspect. It is the same one that happened to the operator who made the comparison between hydroquinone and pyrocatechine. What is to say here is, that both of us had a less soluble sample of hydroquinone, and that, on the contrary, he was working with a very soluble sample of pyrocatechine, for the effect mentioned above presents itself as well with one as with the other product. It sometimes even happens that some of the hydroquinone crystals remain at the bottom of the vessel, whilst other lighter ones float on the surface of the liquid. In this case the red cloud commences at the same time at the top and at the bottom of the vessel, and the bath soon becomes black, I do not say lost, as it still develops very well, but it cannot be kept for a long time. Now let us give a certain remedy for this trouble.

In buying hydroquinone, it is unnecessary to soak it if it is more or less soluble. Weigh the ten grammes and place them in the three hundred cubic centimetres of the solution of sulphite which has been heated over a water bath until it acquires a temperature of from 50° to 70° Centigrade (122° to 158° Fahrenheit). A little more or a little less heat is of no importance. The

hydroquinone is almost immediately dissolved in the hot sulphite. Agitate until the last crystal has disappeared, then add the six hundred cubic centimetres of carbonate. A bath prepared in this manner in a glass vessel is perfectly white, and may be kept indefinitely without being stoppered. It is, moreover, of incomparable energy for instantaneous prints, and a failure, we do not hesitate to say, is impossible. Now a few words and I have finished. If with a new bath you obtain a gray tone (and here we only speak of instantaneous clichés), it is because you have overexposed; you can, therefore, increase the celerity, and especially use the stops of your objective.

By this process, and thanks to the hydroquinone development, we have been enabled to obtain instantaneous clichés made with great rapidity and which are all over sharp. This increase of rapidity and this possibility of using small stops, constitute for us the most remarkable results of the new hydroquinone developer. We shall shortly have the honor of showing to our colleagues of the society, clichés made in this manner by means of a drop shutter of very great rapidity, when it will be possible to determine if we are right, and have always been right, in placing hydroquinone at the head of all the known developers.—*Moniteur.*

## Editor's Table.

SCOVILL Manufacturing Co. have favored us with a view of the interior of their dark-room, made by Scovill's Magnesium Cartridges. It is excellent.

MR. W. H. DIMMOCK, of Elizabeth, N. J., has favored us with a series of pictures resulting from his recent excursion to Florida and the Gulf of Mexico. The pictures are of a variety of horrible things which infest the sea in the shape of sharks, devil fish, and so on, some interesting views of palm groves, and curious branches of trees covered with young oysters which attach themselves during high tide. Mr. Dimmock is now trying to catch the largest salmon in the Miramichi river with his camera and rod. Happy man.

FROM Prof. E. C. PICKERING, director of Harvard College observatory, we have received the second annual report of the photographic study of stellar spectra. It is accompanied by two photogravure prints, one of the observatory and one of the results of the work there, all excellently done. We hope to make some excerpts from the report presently.

FROM Rev. ALFRED H. HALL, of Meriden, Conn., we received a very pretty picture of a little child seated on the marble top of a bureau with his image doubled in the looking glass. The picture is attractive because of the novel position, and the quality is excellent. It was

made with a 13-inch Dallmeyer rapid rectilinear lens, Seed plates 23,  $1\frac{1}{2}$  seconds.

MR. H. B. HULL, Portsmouth, O., has beaten the composite pictures. Instead of superimposing twenty girls one over another, he has given us various views of the same girl in one picture. Right, left, front, and back of the head; and we think it is preferable to the composite.

OUR readers will be interested in Mr. Balagny's article. He seems very sanguine.

MESSRS. CHAS. COOPER & Co., 194 Worth St., New York, have favored us with their May catalogue of chemicals, the most complete catalogue of the kind now published for the trade.

MR. H. S. KELLER, of Keller & Jarvis, Little Falls, N. Y., requests us to remove his advertisement because of being overworked. He sends us some beautiful samples of his work and will soon be ready with his new studio for all that comes. He is an artist of the first class.

PROF. PICKERING, of Portland, Conn., has been entertaining the scientific societies and others with his lantern of late.

MR. SAM C. PARTRIDGE, the well known San Francisco dealer, has been in New York some time, and by the time this reaches our readers will be on his way home with a fine selection of novelties. We wish we could personally be pre-

sent at the grand opening. We wish him great success. He is one of the most enterprising men in our fraternity.

OUR veteran readers particularly should read in the *Photographic Times* of May 25th, the biography of Dr. Charles Augustus Theodore Ehrmann. It is accompanied by an excellent picture of the veteran teacher seated at a table covered with the apparatus of the laboratory. The learned doctor has not only fought in many a battle for his country, but has combated the difficulties of photographers since 1852. We wish we had the space to reproduce the whole of the interesting paper alluded to. It includes a lot of history.

MR. PARKER, of Yarmouth, Nova Scotia, receives enthusiastic praise of his work in the local newspapers. Yarmouth is said to be one of the most beautiful resorts in the far North.

MR. L. C. OVERPECK, Hamilton, Ohio, will astonish the attendants upon the Minneapolis Convention with his new "Flasher" for photographing at night.

THE first volume of the PHILADELPHIA PHOTOGRAPHER, 1864, was rendered valuable by the contributions of Mr. Coleman Sellers. He is again coming to the front as a photographic contributor, and after so long a residence in Philadelphia, has come to Hoboken, N. J., and is now added to the Faculty of the Stevens Institute as consulting engineer. He has lost neither vigor in writing nor enthusiasm for his beloved hobby in all these years, and we hope our readers will soon be hearing from him again.

ANTHONY'S *International Annual* is announced (see advertisement) to be ready early in July, and promises an immense amount of splendid matter for summer reading. No doubt it will prove most acceptable. When it comes we shall bring all its good points to the attention of our readers. The names of its publishers and editors are sufficient guarantee as to its quality.

OUR next number will be embellished by a beautiful landscape photograph with some hints on the subject that will be useful to the summer worker.

WE regret to announce the sudden death of Mr. PHILIP HAWK, of Hamilton, Ohio. While attending to the ceremonies of his lodge he was suddenly seized with a pain in his heart and in

a few minutes was dead. He was one of our earliest subscribers and an estimable man.

It was only natural to expect that Mr. W. D. GATCHELL, the veteran dealer in photo supplies in Louisville, Ky., would make his new catalogue excel all of its predecessors in one way or another. He has accomplished it by printing his new catalogue upon green tinted paper, thus making it easier for the eyes of the interested reader who feels compelled, when beginning the perusal of a Gatchell catalogue, to continue until he has read it all. We wish long continued success to our enterprising friend.

THE Photogravure Co., 853 Broadway, New York, are preparing us a beautiful study for an early issue of our magazine. They are also preparing a great surprise for photographers in a new publication *Sun and Shade* to be made up entirely of art studies. More anon. (See page iv. of our cover.)

PHOTO-ENGRAVING has been given a decided advance by Mr. Wilkinson's book. The interest in the subject was suspected, but it has gone far beyond our expectations. A second edition of the book was demanded inside of three weeks after the first publication. We have not space to repeat the kind press notices that have been received, and hereby acknowledge all. The new book has evidently created an excitement in the fraternity. Look for another fine specimen by Kurtz soon.

THE MINNEAPOLIS CONVENTION. The officers of the P. A. of A. have sent us no communication for this issue. We have but one more number to publish before the grand affair takes place. A circular of "railroad information" has been issued, and can be had from W. H. Potter, Secretary, Indianapolis. A great attendance is expected. The latest news will appear in our next.

WE regret to announce that too close attention to business has broken down the health of Mr. Fred Bade, the popular salesman at J. C. Somerville's St. Louis Stock-House. He will go to Colorado for recuperation.

A. R. HUISKAMP, Esq., Manager of the Seed Dry-Plate Co., sailed for Europe June 7th. A safe return.

IF the element of *unity* pervaded our fraternity, successful insurance and beneficial schemes might be sustained.

# Specialties.

## ADVERTISING RATES FOR SPECIALTIES.

25 cents for each line, seven words to a line—in advance. *Operators desiring situations, no charge.* Matter must be received a week before issue to *secure* insertion. Advertisers will please not ask us for recommendations. ~~We~~ We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement. **Postage-stamps taken.**

**MAKE OUT YOUR OWN BILL**, and remit cash with your advertisements, or they will not be inserted.

**WANTED.**—By July 1st. A good operator for the beach; one that can make good ferrotypes and retouch some, preferred. Also, a gallery for sale cheap.

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**FOR SALE.**—One photograph wagon, which was formerly used as a dark-room. Has enclosed steps in back.

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**FOR SALE.**—The largest, best appointed gallery in the U. S.; 40,000 negatives, nearly all made in the last five years. Net profit of gallery ranging from \$6000 to \$9000 each year for past four years. No little men need apply. Present year most promising in the history of the business. Best offer ever made to a live man with money.

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Care C. H. Codman & Co.,  
34 Bromfield Street, Boston, Mass.

PROFESSOR W. K. BURTON'S BOOK ON PHOTO-MECHANICAL PRINTING PROCESSES continues to attract a good deal of attention. The first supply from England was exhausted and another is here. We are always glad to see good books appreciated, and this one of Professor Burton's is particularly thorough and well written. We have already spoken of it in these columns.—*Anthony's Bulletin.*

A LOT of complete volumes of the magazines, and several photo-books for sale.

J. L. SCOLES,  
Fredericktown, Ohio.

### ALBEE'S BACKGROUNDS TESTIMONIAL.

The background is very satisfactory. The clouds are very soft and airy. Shall probably have to have another ground before long, and perhaps two—one interior and one exterior. I wish you all success, and will do all I can to help you.

A. C. AUSTIN, Nashua, N. H.

I HAVE received your Burnett and prize it very highly, as it is a great assistant in the studio. I consider it invaluable to any Photographer or Artist.

F. W. GUERIN, St. Louis, Mo.

The more you read *Quarter Century* the better it gets. It is like good wine, the older the better; or, as a Kentuckian would say, good whisky. Send the book on Photo-Engraving.

FRANK THOMAS,  
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See what wide-awake photographers are doing with the Violet Lightning Flash Compound:

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1030 Arch Street, Phila.

WILSON'S *QUARTER CENTURY IN PHOTOGRAPHY.*—From the title of this book a casual reader would suppose that it was the experiences of a photographer for a quarter of a century; but they would be greatly mistaken, as its second title, "A Collection of Hints on Practical Photography, which forms a Complete Text-Book of the Art," explains what it really is. Mr. Edward L. Wilson, the author and compiler, is well known as a thoroughly practical writer on photography, and his *Quarter of a Century* is a valuable addition to the many other books on the subject he has written and edited. It will be an authoritative encyclopædia for many years to come; we have searched for omissions, but find it a very perfect treatise on the art.—*Trübner's American, European and Oriental Literary Record* (London, Eng.).

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FRANK THOMAS,  
Columbia, Mo.

It is a pleasure to know that all of the best photographers in the city of PHILADELPHIA are using Three Kings Albumen Paper. Price per dozen, 90 cents; per ream, \$32.00; second choice, per ream, \$24.00.

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The well-known author says, "The object of this work is to give practical instructions in the working of all processes which are in actual everyday use at this date."

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Mr. Burton's capital papers in the *Photographic Times* have made him very popular in America, and his book will prove welcome to his many friends here. I have just received (too late for review) an edition for this market. Copies mailed on receipt of price.

EDWARD L. WILSON,  
853 Broadway, New York.

The more you read *Quarter Century* the better it gets. It is like good wine, the older the better; or, as a Kentuckyian would say, good whisky. Send the book on *Photo-Engraving*.

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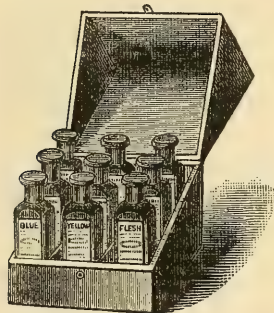
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CHAPTER III.—General Remarks on Contact Printing.

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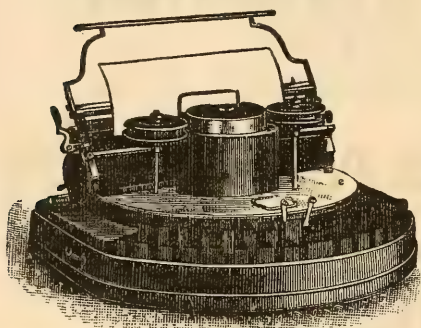
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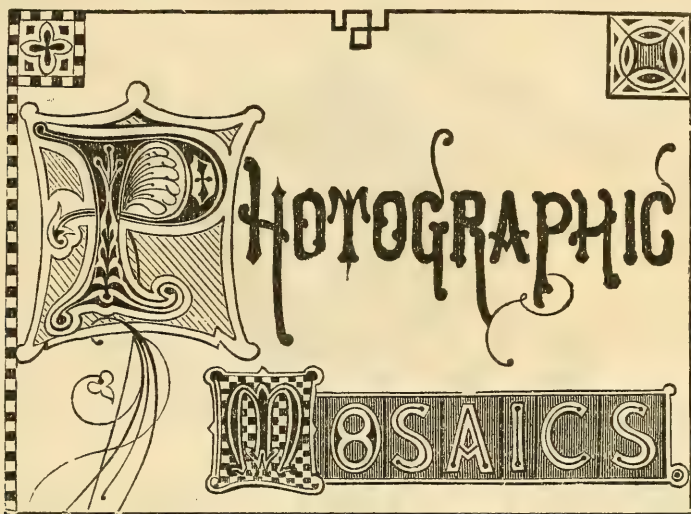
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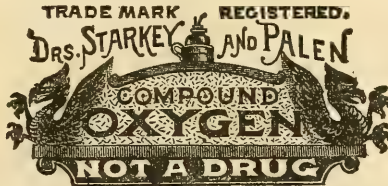
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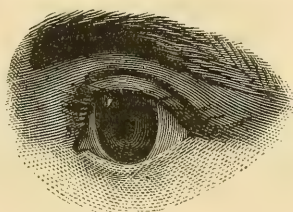
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[OVER.]

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WILSON'S QUARTER CENTURY IN PHOTOGRAPHY. A Collection of Hints on Practical Photography, which form a Complete Text book of the Art. By Edward L. Wilson. Published by the Author. New York, 1887. Price \$4. Pp. 528.

In making the above claim that this work is a complete text book of the art of photography, the author has not overstepped the mark, for we have seen nothing to compare with it in clearness and attention to details and manipulations. The author's easy style is already well known to those interested in the subject, and goes a long distance toward making the "*Quarter Century*" an interesting volume, entirely independent of its large store of information. After an outline history of the subject, the theory of photography is treated of; then follow the subjects of light, the camera and lenses, the diaphragm, artistic principles, indoor and outdoor work, chemicals needed, negative making, printing, photo-engraving, slide making, etc., etc., with a host of details worked in under the proper headings. Isochromatic photography is treated of in a separate chapter, and its special value in certain classes of work noted. The more prominent features of the work are the chapters on lenses, art principles and the making of paper and film negatives. The treatment of this last subject will be found of especial service to the travelling amateur, who is often deterred from adopting the use of flexible negatives simply because he can find little reliable information concerning their peculiarities. We know of several cases of amateur enthusiasts in the art who have tried the "films," and finally returned to the old stand-by glass plates, because of difficulty in handling the later process. By the light of such information as Mr. Wilson has supplied, this difficulty largely disappears, and the process is simplified by giving a detailed understanding of it. The arrangement of the book is exceptional in one respect that greatly increases its value for general work. The main text is supplemented by foot notes in smaller type, comprising quotations from all our leading writers on the subject, and in many cases containing original methods that have not yet become generally known to photographers. This collection Mr. Wilson has been in an excellent position to make, as editor of the *Philadelphia Photographer*, and the readers of the "*Quarter Century*" will be more than repaid by a close comparison of the methods presented.—*Iron*.

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methods. It is adapted to the needs of both amateur and professional, and would be a useful hand-book to have in any gallery, and it has one preëminent qualification for such service, it is nearly square in form, and, as a consequence, will open out flat and stay open, as books of the usual shape rarely will.

It is a very curious book in its make-up, a double-headed Briareas which helps with both head and hands. Each paragraph of the author's is paralleled by voluminous extracts from other writer's all bearing on the subject-matter of the paragraph in question. One does not, therefore, have to stop and go in search of what other authorities say on the point, it is all brought together here in one place, and the book becomes a library of books on photographics, but one in which the differing views are, in a sense, already digested and assimilated for the student.

Text and extracts are fully and admirably illustrated, as will be shown by the statement that nearly four hundred cuts, illustrating processes, principles, and apparatus, give point and interest to the text and extracts alike. The thoroughness, and what may be called the impersonality of the book, is shown by the list of authorities who have been laid under contributions, a list which includes nearly three hundred names of professional photographers and scientific authorities, as well as of amateurs, whose experiments and observations are not the least in value.

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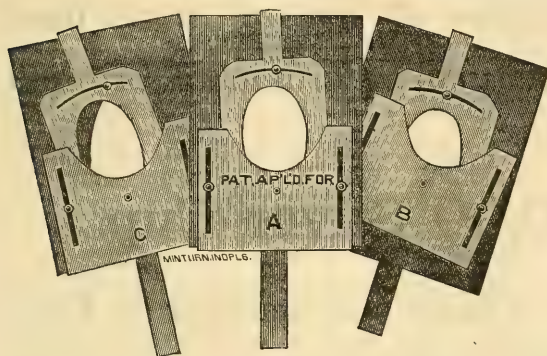
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